PRINTING EQUIPMENT ENGINEER

JUL 1936

TECHNICAL PUBLICATION FOR PRODUCTION AN
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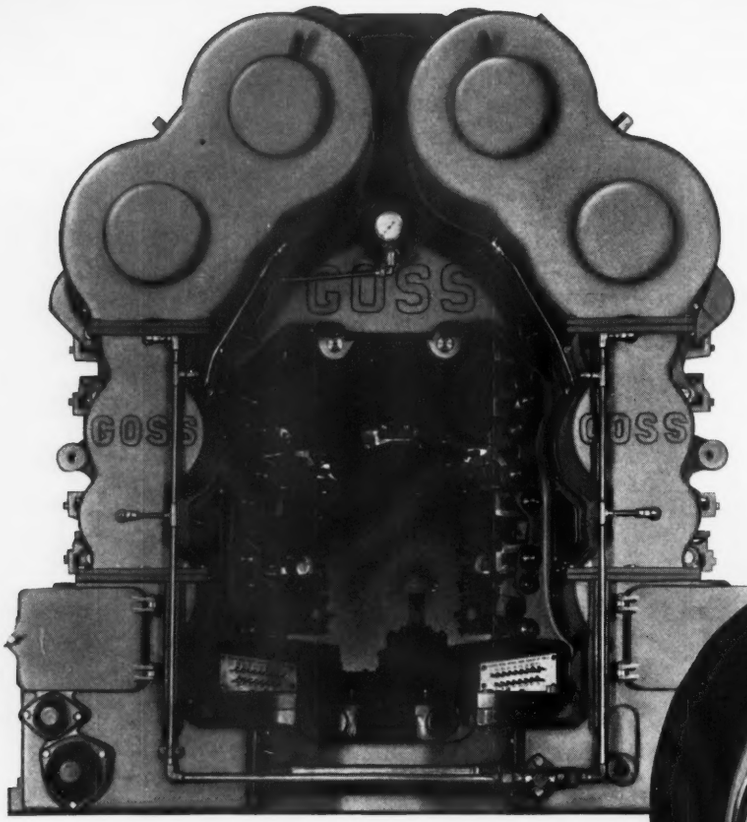

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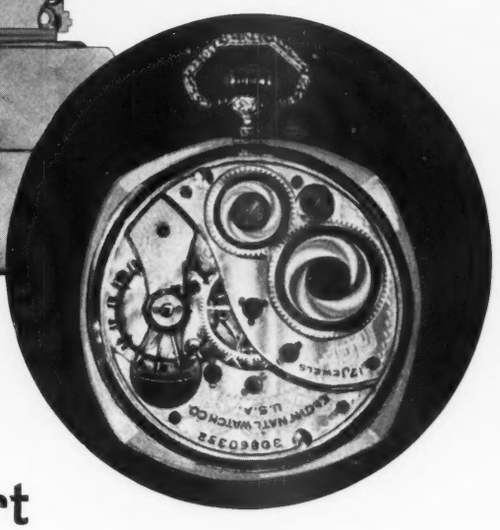

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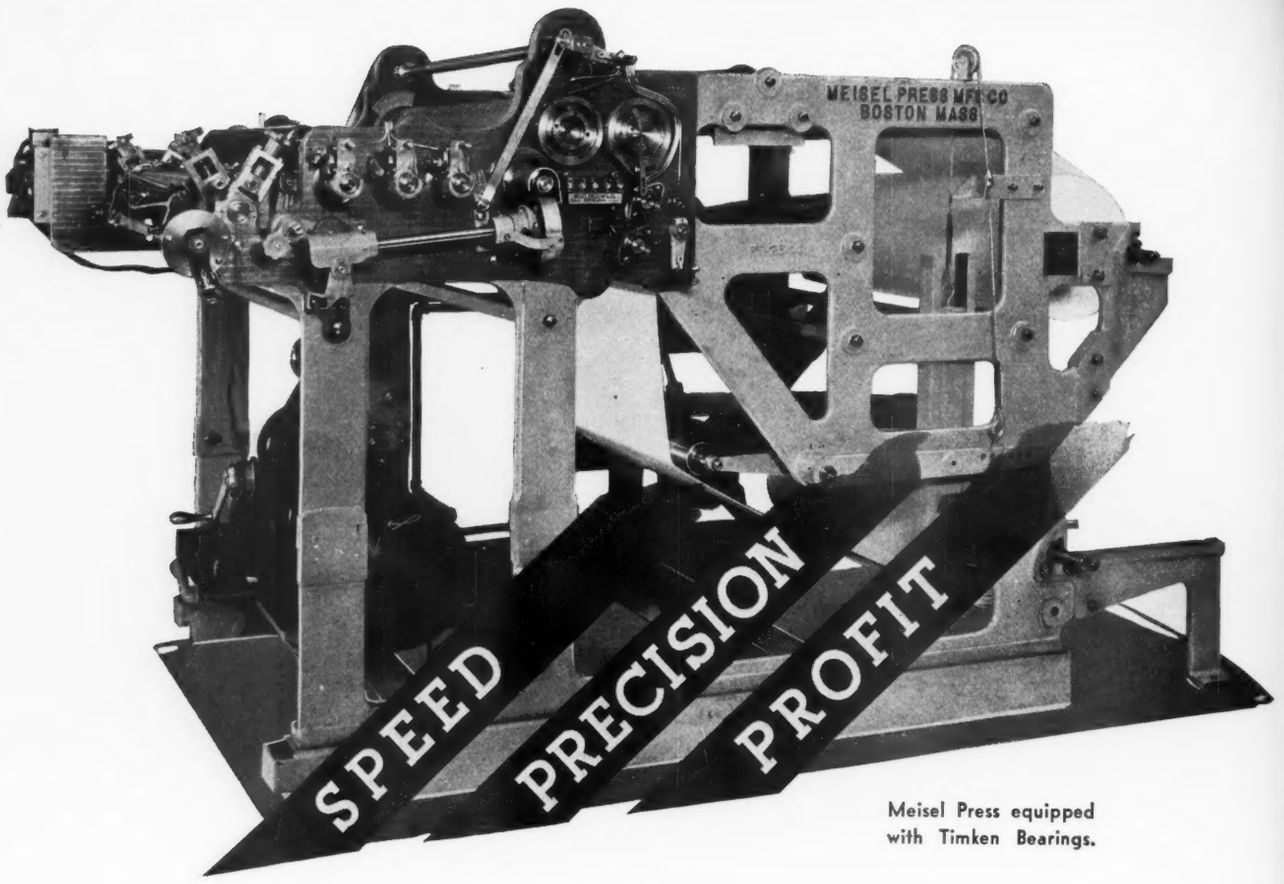

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JULY 1936
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Trade-Mark Registered U. S. Pat. Office

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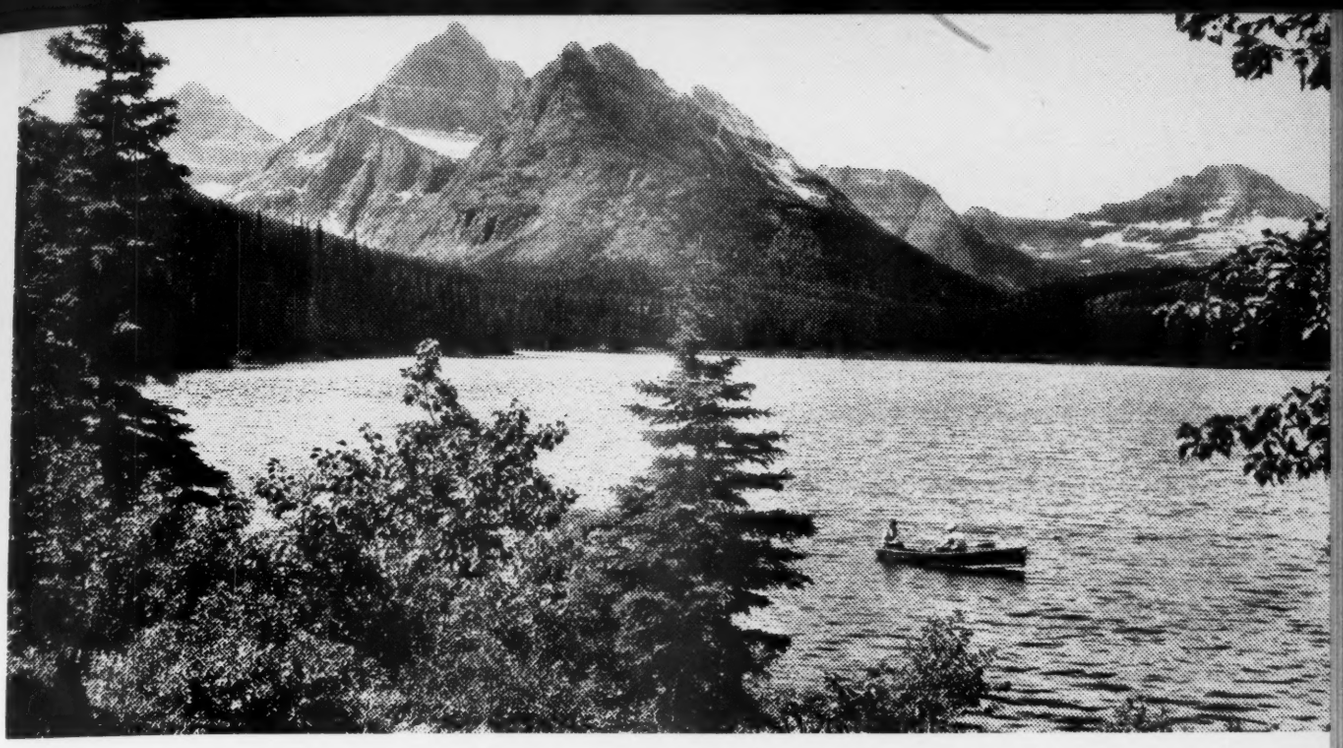


IN PRODUCING THIS ZINC HALFTONE, AN ERNST 60 LENTICULAR SCREEN WAS USED

Lensic Screen

Intended To Be Adaptable For Use In All Plate-Making Processes

By MAC SINCLAIR

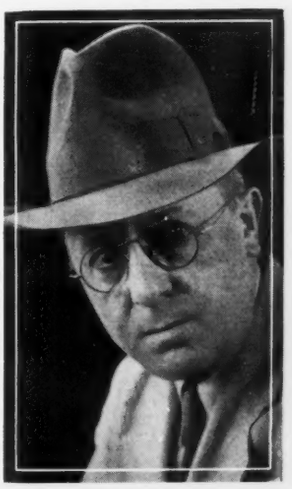
THE Ernst Lenticular Screen is intended to be adaptable for use in the letterpress, offset-lithographic and gravure plate-making processes. What little information has been released about the screen has created considerable interest among mechanical executives who are speculating upon its possibilities. Victor C. Ernst, inventor of the screen, has been associated for several years with the Horn & Norris Company, offset printers in Cleveland. In this plant the screen is used exclusively for the production of offset printing.

Experiments related to the contemplated uses of the screen for offset printing seem to have established maximum practical results since the screen is being used in everyday offset printing such as the production of broadsides, mailing pieces, stuffers and other pieces of printing in which are incorporated reproductions of photographic material. Some experimentation has been done in rotogravure work. At the present time, Mr. Ernst is installing this process in a Cleveland newspaper plant for production of newspaper halftones. Some very fine examples of newspaper black-and-white halftone illustration have been produced in the past three months.

It is the aim of Mr. Ernst to employ the screen for the production of square-pattern dots in rotogravure work;* cross-pattern dots (or simply "crosses") in photolithography, instead of the conventional round dots, and in photoengraving to use round dots. In any one of the three processes, however, any one of an innumerable number of patterns may be used. These include lines extending in any direction, zigzags, diamonds, elipses and lenticular combinations. This phenomenon is explained by stating whatever shape the light source may be, that shape will be reproduced in the dot formation upon the printing surface of the halftone plate. If the light source is round, the resultant dots will be round. If the light source is square, square dots will be formed in the halftone surface of the plate.

The preferred form of the Ernst Lenticular Screen consists of a celluloid (or similar substance) sheet upon one side of which have been embossed, by means of a die under sufficient pressure, myriads of microscopic truncated lenses.

The plano-convex lenses correspond in number per inch to the well-known and conventional cross-ruled glass photoengraving screen. Each of the miniature lenses refracts its own light ray and focuses it upon a sensitized surface which produces a dot formation upon the negative somewhat smaller in diameter than the diameter of the lens itself. (*Continued on Page 10*)



V. C. Ernst, Inventor and Developer of Lensic Screen for Letterpress, Offset and Gravure.

*In gravure work, by use of the lenticular screen, the positive contains the screen formation necessary for printing on either flat copper or on the cylinder, and gives in the final plate, or cylinder, dot gradations of varying sizes as well as of varying depth. A very important consideration here is the formation in the shadows, since this formation must carry the proper bearers for the doctor blade. The lensic screen accomplishes this to any degree desired and means flat etching only on the plate or cylinder.

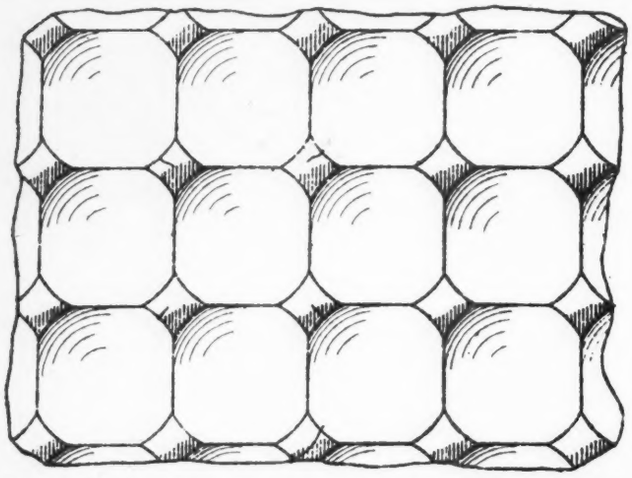


Fig. 1.—This diagram represents a many-times enlargement, top view, of the Ernst Lenticular Screen for use in the photoengraving, offset and gravure plate-making process. As will be seen, the screen consists of a myriad of microscopic truncated lenses, and, referring to Fig. 2, it will be seen that the plano-convex lenses are embossed or molded integrally upon a sheet of celluloid or other similar meterial. In the actual screen of 110 lenses to the inch, each lens is approx. 0.009 in. diam. The focal length of each lens is approx. 0.005 in.

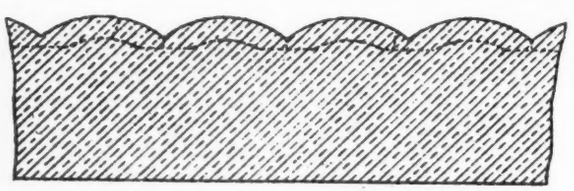


Fig. 2.—Cross-sectional diagram (greatly enlarged) of the Ernst Lenticular Screen. The plano-convex lenses are truncated as shown in Fig. 1. The total thickness of the screen is 0.010 in.

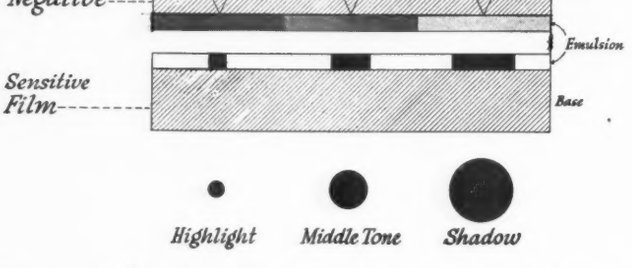


Fig. 3.—Cross-sectional diagram of a section of Ernst Lenticular Screen as used to obtain a screened-positive from a continuous-tone negative. For explanatory purposes, it is stated the sensitized plate or film (which is to be made into a screened-positive) is placed in the printing frame, the continuous-tone negative is placed upon the sensitized plate and finally the screen is placed upon the negative. Upon exposure to the light source, light rays pass through the screen and focus upon the continuous-tone negative as shown. According to the amount of light which is permitted to pass through the negative, halftone dots will be produced upon the sensitive film, i.e., the least amount of light will be permitted to pass through the highlight portions of the continuous-tone negative and being intercepted by the screen are focused with less intensity upon the sensitized film. The middletone dots will be larger than the highlight dots, and the diameter of the shadow dots as produced by the focusing action of the screen lenses, will be the largest in diameter.

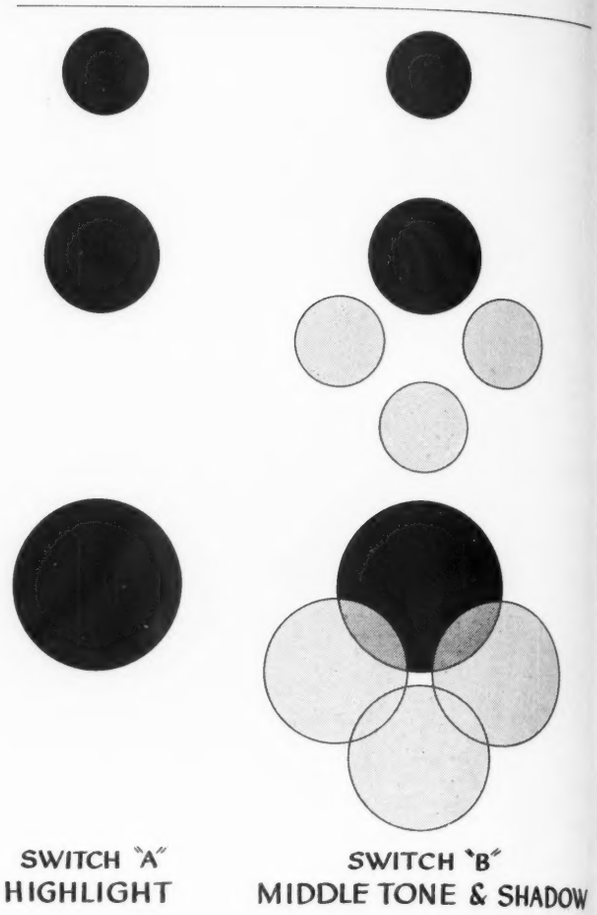


Fig. 5.—Relative size of dots (greatly enlarged for explanatory purposes) resulting from use of four-lamp canopy with lamps arranged diamond pattern when printing a negative with the Ernst Lensic Screen. At the left portion of the diagram are shown the three relative sizes of dots obtained from a single light source when a sensitized plate is exposed through a screen. The upper spot at the left represents a highlight dot, the center spot (immediately below) a middletone dot and the lower spot represents a shadow dot. When switch "A," as shown in Fig. 4 is turned on, a single lamp in the canopy is illuminated, producing the single highlight, middletone and shadow dots, the comparative size of which is shown by the spots in the left portion of this diagram. When switch "B" (Fig. 4) is turned on, the remaining three lamps are illuminated, the light rays from which pass through the lensic screen to produce the shaded dots (i.e., the dots are shaded here for explanatory purposes only) for the middletones and shadows in formation clustered about the dots obtained from exposure of the single lamp, as shown in the two lower right-hand sections of this diagram. The dots clustered about the single dots (the single dots were obtained by exposing the sensitized film to the single lamp) are produced in cluster formation because each of the light rays from the three lamps are received by the screen lenses at different angles, i.e., each lens focuses light rays in a position according to the position of the light from which the rays are received. It will be noticed that the shadow dots in cluster formation intersect each other and that what would be the individual dots are larger than either the highlight or middletone dots. It is repeated here (as explained in Fig. 3) that the amount of light permitted to pass from each individual lens of the screen through the continuous-tone negative determines the size of the dot, and that whatever the pattern of the light source that pattern will be reproduced by the lenses.

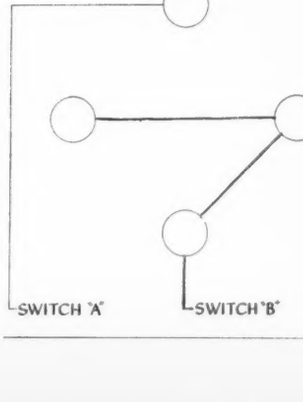


Fig. 4.—Lamp formation used in connection with Ernst Lenticular Screen. The lamps are suspended from a canopy as shown in the halftone of the printer. Switch "A" is used for the 10-second highlight exposure. Switch "B" is used to illuminate the three lamps under a 5-second exposure upon the same negative. The two exposures are made in succession upon the same negative to secure the dot formation as shown in Fig. 5.

It is the claim of the inventor that the usual halftone printing plates comprehend three tonal values (highlights, middletones and shadows) but through the use of the lensic screen, it is possible to obtain a greater number of tonal values which includes high, middle and low highlights; high, middle and low middletones, and high, middle and low shadows. The microscopic dots as produced by the lensic screen, while of different size, are uniform in shape. Use of the lenticular screen permits production of a printing plate in which many tonal graduations of an object are reproduced automatically (without mechanical juggling [staging] and manipulated artistry) so that the screen print which is obtained is characterized by the dot patterns of different shape, or elements of the microscopic dot pattern of different formation, to produce what may be termed a blended dot variation corresponding to the tonal contrast of the original subject.

A straight-away dot structure is obtained by exposing a sensitized plate under a continuous-tone negative to a single artificial light source by interposing a lensic screen between the negative in the vacuum frame and the light source. Variations of dot structure may be obtained by any one of several methods. The equipment used by Mr. Ernst at present in his production work in the Horn & Norris plant for offset consists of a vacuum printing frame mounted horizontally upon a table. Above the table is a canopy, on the under surface of which are suspended in geometric formation four lamps of special make. A switch at the front edge of the table enables the operator to illuminate the rear central lamp for obtaining the single highlight, middletone and shadow dots on the sensitized plate. By turning on the remaining group of three lamps multiple middletone and shadow dot structures are recorded on the sensitized plate. This is effected by the light rays entering each individual lens at an angle to the axis of each lens which produces an auxiliary dot (arranged planetary form about the main dot) according to the number and position of the lamps which expose their rays at different angles to each minute lens. The first exposure of 10 sec. duration of the single lamp as stated above, upon the sensitized plate or film produces the single dots. The light rays from the one-light source focused by the lenses and passing through the continuous-tone negative to the sensitized surface of the plate beneath, however, are not of sufficient strength to record the middletones and shadows in their proper value. The second switch is now turned on for 5 sec. duration to illuminate the remaining cluster of three lamps to form the middletones and shadow dots as shown in Fig. 5. After the screened positive has been obtained as just described, it is developed. A negative is now made from the screened positive which in the case of offset is printed directly upon the press plate, or in photoengraving is printed upon the sensitized coating or film for transferrance to the zinc or copper plate.

When the Ernst Lenticular Screen is employed for projection printing (enlarging or reducing) the light rays (from the lamp) are caused to pass through the negative photographic image and then through the lensic screen to the light-sensitized surface. In this manner the size of the dot formations may be controlled regardless of the size of the negative enlargement or reduction.

Epstein Changes Position

Samuel Epstein, who until recently was research director at the Battelle Memorial Institute, Columbus, Ohio, is now associated with the patent department of the Bethlehem Steel Company at Bethlehem, Pa. His new position was effective June 1.

COME TO

Cleveland

1937

The Cleveland Craftsmen's Club (its officers and members) cordially invite the International Association of Printing House Craftsmen to come to Cleveland for its 1937 Convention. In addition to the 100-day Great Lakes Exposition, Cleveland is entertaining 150-odd conventions of various kinds this summer, which should be proof enough that

CLEVELAND KNOWS HOW!

Big Time

Promised in August for Craftsmen At Minneapolis Convention

By STAFF WRITER

THE Seventeenth Annual Convention of the International Association of Printing House Craftsmen will be held at the Hotel Radisson, Minneapolis, Minn., from August 9 to 12 inclusive. The Minneapolis convention committee, under the direction of President Clarence Groettum and General Chairman Roy Brewer have prepared an outstanding program.

The Educational Clinics will be featured at this year's convention. The Clinics were sponsored by DeWitt A. Patterson and his four divisional vice chairmen, Philip J. McAteer, Howard N. King, Craig Spicher and George H. Finigan.

On Tuesday morning, clinics will be held as follows: Offset—O. E. Freedman, Manz Corp., Chicago; Presswork—Leader to be selected; Paper—Summerfield Eney, Jr., Champion Paper & Fibre Co.; Electrotyping—C. L. Sampson, Sampson & Ollier Electrotyping Co., Chicago.

On Monday morning, Educational Clinics will be held as follows: Photoengraving—Roy W. Knipschild, Rosenow Co., Chicago; Composing Room—Howard N. King, the Maple Press, York, Pa.; Gravure—Ralph Winship, Beck Engraving Co., Philadelphia; Inks—Charles R. Conquergood, Toronto.

An intriguing topic for Craftsmen will be found on the Tuesday morning program when Dr. C. A. Prosser, Director, The William Hood Dunwoody Industrial Insti-

(*Continued on Page 45*)

The Minneapolis Convention Committee

Roy Brewer, *General Convention Chairman*
Clarence A. Groettum, *President*
Otto L. Mickelsen, *Vice-President*
Martin W. Pearson, *Secy-Treas.*

Inserting

Machine Employs Novel Means For Stuffing Newspapers Automatically

By MAC SINCLAIR

A MACHINE in which are incorporated novel means for "stuffing" or inserting one or more newspaper sections automatically within an outside section of the same edition has been announced by G. R. Tuttle, president of the Ellsworth Machine Company in Kansas City, Mo. Delivery of the first machine will be made about July 15.

The mechanism is known as the Zimmer Inserting Machine and the model shown in the accompanying halftone illustration will stuff or collate a three-section newspaper at the rate of 10,000 complete copies per hour. This particular model is 7 ft. 9 in. long by 2 ft. 8 in. wide. With the delivery table down in operating position, however, the total length of the machine is 16 ft. 11¼ in. Height is 4 ft. 2 in. and its weight is 3000 lbs. Two 1½ h.p. motors are required to operate the machine —one for the conveyor and transmission mechanism and the other for the vacuum devices which are used to separate the sections at the proper intervals, both in the initial feeding operations and the opening of the first sections for insertion of the additional sections. The Zimmer Inserting machine is mobile, being provided with wheels so that it may be moved about the mailing room floor as required.

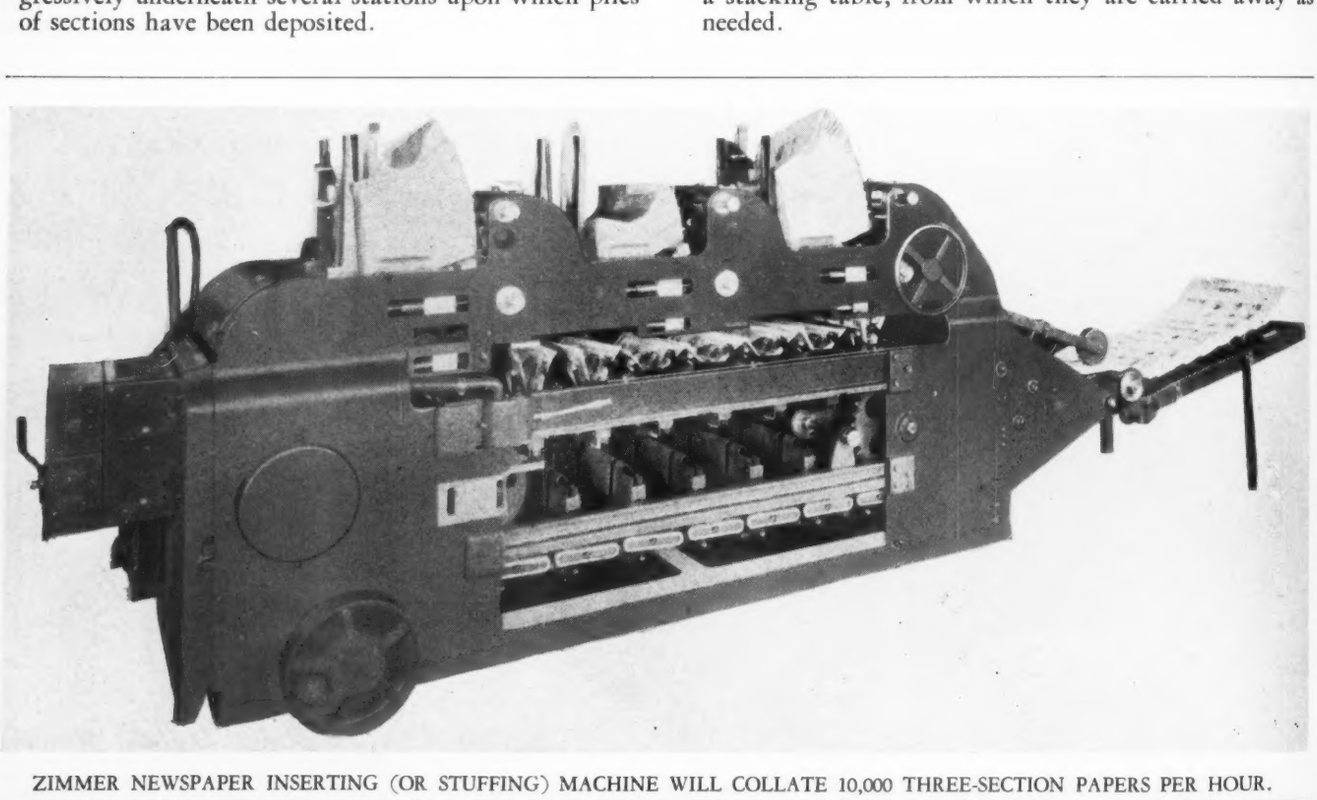
The Zimmer Inserting Machine employs a continuously revolving conveyor belt working in conjunction with properly timed vacuum devices as a means for collating paper sections. The conveyor passes progressively underneath several stations upon which piles of sections have been deposited.

G. R. Tuttle, president of the Ellsworth Machine Company, states that the inserting machines will be built according to the needs of newspaper plants with two, three, four and five heads. It will be possible to operate only two heads on a three, four or five-head machine, or as many more heads as are needed (according to the number of newspaper sections it is wished to collate) up to the maximum head capacity of the machine.

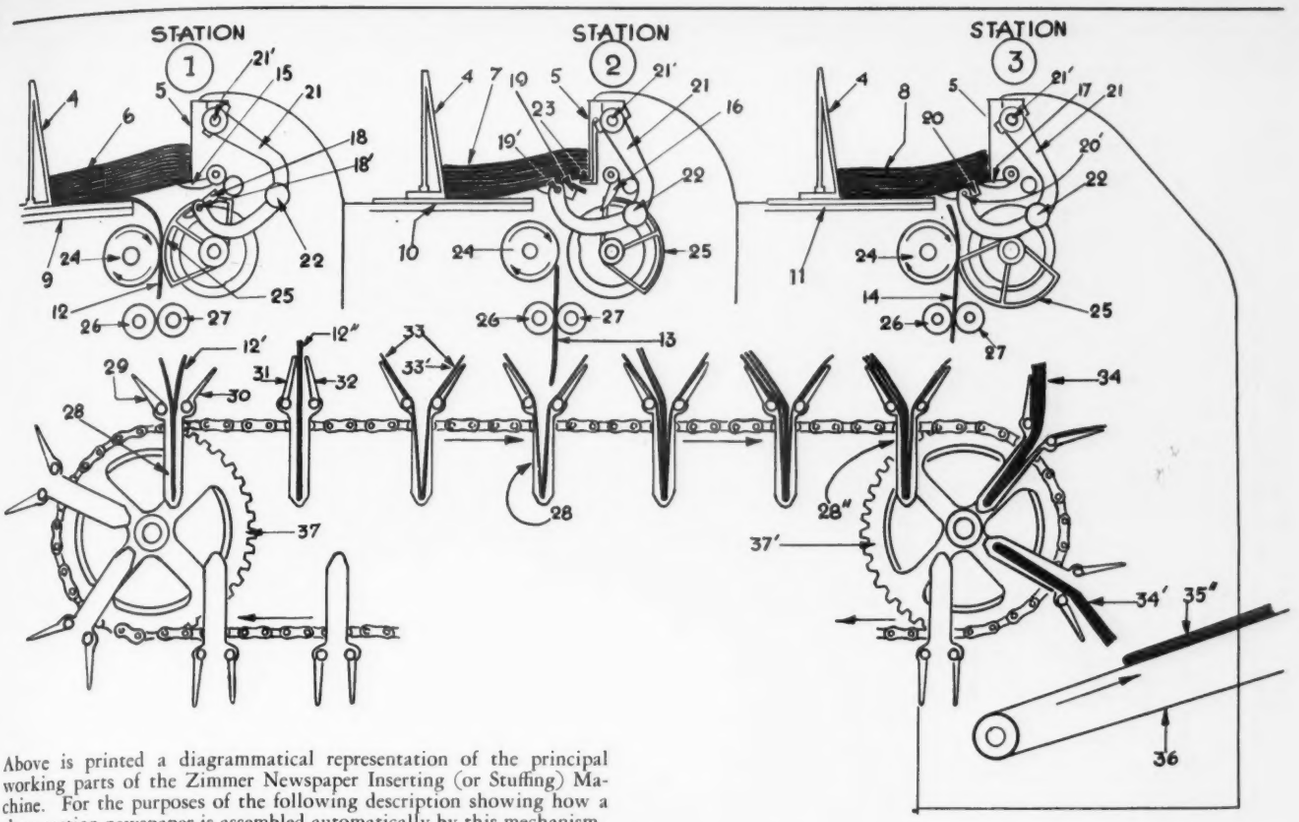
The machine will be automatically controlled without stopping as follows: If the sheet (section) should fail to come down on the No. 1 head (or station) no sheets would come down from the No. 2 or No. 3 head into the conveyor. If the sheet (section) fails to come down on the No. 2 head, no sheet would be delivered from the No. 3 head. Thus the sheet from the No. 1 head that would be in the conveyor would be thrown out from the delivery. The same thing would occur if a sheet in the No. 3 head failed to come down. In other words, an incomplete paper cannot get on the delivery.

The machine shown in the halftone illustration is provided with three stations (one for each newspaper section) upon which are deposited a quantity of the various sections in proper sequence.

Assuming that the paper to be collated is made up of three sections—comics, news and Roto, and that it is desired to employ the comic section for the outside or wrapper, between the folds of which will be deposited the news and roto sections, it will be necessary to deposit the comic sections upon the first station at the left end of the machine. The stack of news sections will be placed upon the second station and the roto sections upon station 3. The machine automatically extracts and deposits the first or comic section in one of the conveyor pockets and opens the section, between the folds of which are deposited in succession the news and Roto sections. The assembled newspaper is then dropped upon a traveling conveyor belt at one end of the machine which carries the paper to and delivers it upon a pile of sections which have been deposited upon a stacking table, from which they are carried away as needed.



ZIMMER NEWSPAPER INSERTING (OR STUFFING) MACHINE WILL COLLATE 10,000 THREE-SECTION PAPERS PER HOUR.



Above is printed a diagrammatical representation of the principal working parts of the Zimmer Newspaper Inserting (or Stuffing) Machine. For the purposes of the following description showing how a three-section newspaper is assembled automatically by this mechanism, it is sufficient to refer only to the major mechanical movements involved and to the movements of the newspaper sections (represented by endwise diagrams) to show how the various sections are assembled by the machine. Therefore, the side and end plates, the driving means, the vacuum apparatus and other detailed parts, are omitted.

As will be seen, the Inserting Machine shown above, is supplied with three stations in each of which are placed a pile of each newspaper section. For illustrative purposes, the newspaper to be assembled will consist of a comic section (at rest in Station 1), a news section (a number of which rest in Station 2) and a Roto section (a number of which rest in Station 3). It is desired to employ the comic section as the "wrapper" or outside section to contain the remaining news and Roto sections.

Each pile of sections is placed on its respective platform *9*, *10* and *11*, with folded edges resting against the fixed guides *5* at the right side of the pile and the free edges of the sections resting against adjustable guides *4*.

In the act of assembling the various sections into one complete newspaper, the bottom section is withdrawn from each stack progressively from left to right and is deposited in the continuously traveling conveyor pockets underneath the station line as shown by the pocket indicated at *28*. The various pockets spaced between the conveyor chain links and of suitable width to contain the newspaper sections, are supported by two sprocket chains running parallel on four sprocket wheels, two of which are indicated at *37* and *37'*. The direction of rotation is clockwise as indicated by the arrows.

As will be seen by looking at the diagram, each pile of sections rests upon the immovable platforms *9*, *10* and *11* with the folded edges overhanging the platforms and supported by the pairs of arms, *15*, *16* and *17*. At the instant one of the vacuum nozzles *18*, *19* or *20* is in the act of withdrawing the bottom section (as shown at *19* Station 2), the pair of supporting arms *16* is withdrawn downwardly and within an arc of a circle, and two fingers, one of which is shown at *23*, engage the folded edge of the second section from the bottom of the stack while the lowermost section is being withdrawn.

The two nozzles *18* (Station 1) mounted on the two arms *21* are suspended on the shaft *21'* and the movements described by the nozzles *18* are best explained by saying they are similar to the movement employed in drawing an arc of a circle and the rocking motions of the nozzles which are necessary in order that they may engage and withdraw properly the lowermost section from any one of the three piles *6*, *7* or *8*. The vacuum in the nozzles *18*, *19* or *20* is created at the proper moments by channeled and swiveled connections in the hollow parts of the shafts *21'*, the curved arms *21*, the swivel pins *18'*, *19'* and *20'*, and the pairs of nozzles *18*, *19* and *20* mounted thereon. When the vacuum is drawn in the curved arms *21* a valve *22* in the curved arm *21* is being opened by a cam (not shown) to allow vacuum to enter vacuum nozzles *18*, *19* and *20* downwardly into the position shown at *19* Station 2, to draw the fold of the lowermost section in a stack into the position to be engaged by the segmental roller *25* and the roller *24*. A vacuum control valve then shuts off the vacuum to release the folded section of the paper which enters between the segmental roller *25* and the roller *24*.

In the initial operation of assembling the newspaper, the lowermost section of the pile of comics *6* resting on the platform *9* in Station 1 is engaged near its folded edge by two vacuum nozzles, in like manner to that shown by one of the nozzles at *20* in Station 3. Then, as has been explained, the vacuum nozzles (like the position shown at *20* Station 3) engage the lowermost section of the comics in Station 1 and deflect the folded edge of the section downwardly (like shown at *19* Station 2) to engage the folded edge of the section between segmental roller *25* and roller *24*. The act of withdrawing the lowermost comic section from the stack is now completed by the roller *27* and the roller *26*. Meanwhile the two arms *15* return to position to support the overlapping side of the stack *6* and the two fingers *23* (like shown at *23* Station 2) retreat from engagement of the folded edge of the now lowermost section, and the two vacuum nozzles *18* move in a position to clear the section which is being withdrawn.

As has been explained previously, the lowermost comic section shown at *12* Station 1, passes downwardly between segmental roller *25* and roller *24* until it is engaged and given further downward controlled impetus by rollers *26* and *27*. The comic section continues its downward movement until it is deposited in pocket *28* of the moving conveyor operating upon sprockets *37* and *37'*, shown at *12'*.

At the proper interval, the swivably mounted wings *29* and *30* at the top of the pocket *28* close in on the comic section *12'* as shown at *31* and *32*. The wings *31* and *32* having closed in on the comic section are now ready to separate the two folded portions of the comic section which is designated by *12"*. Shortly after the wings *31* and *32* have moved to close in on the comic section *12"*, a vacuum is created in a channeled member (*not* shown) having suitable vacuum openings in the wing *31* and *32* of the pocket. The section *12"* and the wings *31* and *32* now assume an opened position as shown at *33*. At this moment the vacuum which was created in the leading wing is discontinued and a holding finger (indicated at *33'*) moves over the opened flap resting against the leading wing to retain the section open.

While the pocket *28* carrying the opened comic section passes under Stations 2 and 3 the news section *13* and the roto section *14* are deposited within the now open flaps of the comic section *12* in the pocket *28* and *28"* under stations 2 and 3.

While the pockets carrying the assembled sections *34* move through the arc formed by the two sprocket wheels *37'* of the conveyor, the sections *34'* drop by gravity upon a delivery belt *36* as at *35*. The belt *36* operates at a faster speed than the speed of the assembling conveyor to space the deposited sections on the belt which are now taken to and stop against stop bars (not shown) upon a stacking table where the assembled sections are stacked for removal from the machine.

Thiokol

New Material for Printing Plates—Also Used for Press Blankets

By Staff Writer

"THIOKOL" is furnished as raw material by "Thiokol" Corporation to manufacturers who fabricate it into such diversified products as balloon covering, automotive fuel hose and printing plates. "Thiokol" is made by the chemical interaction of ethylene dichloride and sodium polysulphide. These two liquids are permitted to coagulate in huge vats for about five hours. The reaction takes place in large tanks equipped for mechanical agitation and accurate temperature control. After five hours, the reaction product is washed thoroughly and then coagulated by means of acid. The waste liquid is drawn off, leaving a residue of caky rubber-like material. This is "Thiokol."

About four years ago, printing press blankets were produced with "Thiokol" composition coating. In March of this year, "Thiokol" synthetic rubber plates were developed, for which marked advantages are claimed.

Up to the present time, printing press rollers have not been produced commercially, but "Thiokol" has been experimented with as a printing press roller material and a chief hope in that direction, it is said, lies in the production of offset rollers.

"Thiokol," as is stated above is used in the fabrication of printing blankets. Blankets must have resilience, softness, pliability and should be oil resistant. Resilience is that quality which will allow the blanket to spring back under pressure. Uniformity in this resilient property is of the utmost importance. Every square inch of the blanket must have the same "spring." Softness is the quality which makes the blanket impressionable and at the same time prevents rapid surface wear. Pliability is that quality which allows the blanket to follow the contour of the cylinder and eliminates "running-in." "Thiokol" blankets, it is stated, meet all these qualifications.

The actual manufacturing procedure in making the blanket is this: "Thiokol" compound is calendered into a thin sheet and squeezed on the felt. This is then rolled upon a drum with a smooth rubberized sheeting for a liner. The drum is then placed in a large steam vulcanizer for curing. After removal, in some instances where an especially smooth surface is desired, the blanket is ground to even thickness. Great care is taken throughout the manufacturing procedure to insure uniformity of thickness.

Printing Plates

The "Thiokol" plate, it is said, is completely resistant to the action of chemicals contained in printing inks and to gasoline, kerosene and other washes. All types of printing now done with natural rubber plates (folders, broadsides, cut-outs, catalogs, etc.) can be printed in fine halftone and type work. Other advantages claimed for the new plates are that they effect a saving in ink and printing coverage, and that press preparation on all types of printing is materially shortened.

"Thiokol" plates can be molded from line engraving, type forms and halftones of up to 120-line screen. Because "Thiokol" is vulcanized and processed like rubber (the raw material is furnished fully compounded and vulcanized and requires only heat and pressure to form the plate from the matrix) printers having equipment for molding rubber plates can use it also to make "Thiokol" plates. Otherwise the plates can be made from original forms by "Thiokol" plate makers.

The procedure in making plates is as follows: A previously heated matrix board is placed over the type form or engraving very much as in the making of a stereotype matrix. To prevent the matrix from adhering to the top of the press a thin sheet of tin or brass is usually placed over the board. Pressure is applied and the newly-formed matrix is removed and cleaned for the plate-making. A charge of "Thiokol" in powder form is then spread over the matrix and pressure is once more applied. In six minutes the plate is formed, leaving only the trimming and mounting to complete the operation. For making a plate from start to finish it is stated between one-half and three quarters of an hour is ample time. As many sets of plates as desired can be made from the original form.

In molding "Thiokol" plates in the press, 40 lbs. steam pressure and from 40 to 50 T. pump pressure are normally used. There is a slight variation in the amount of pressure required for the various consistencies of "Thiokol" powders, but the heat treatment is always the same.

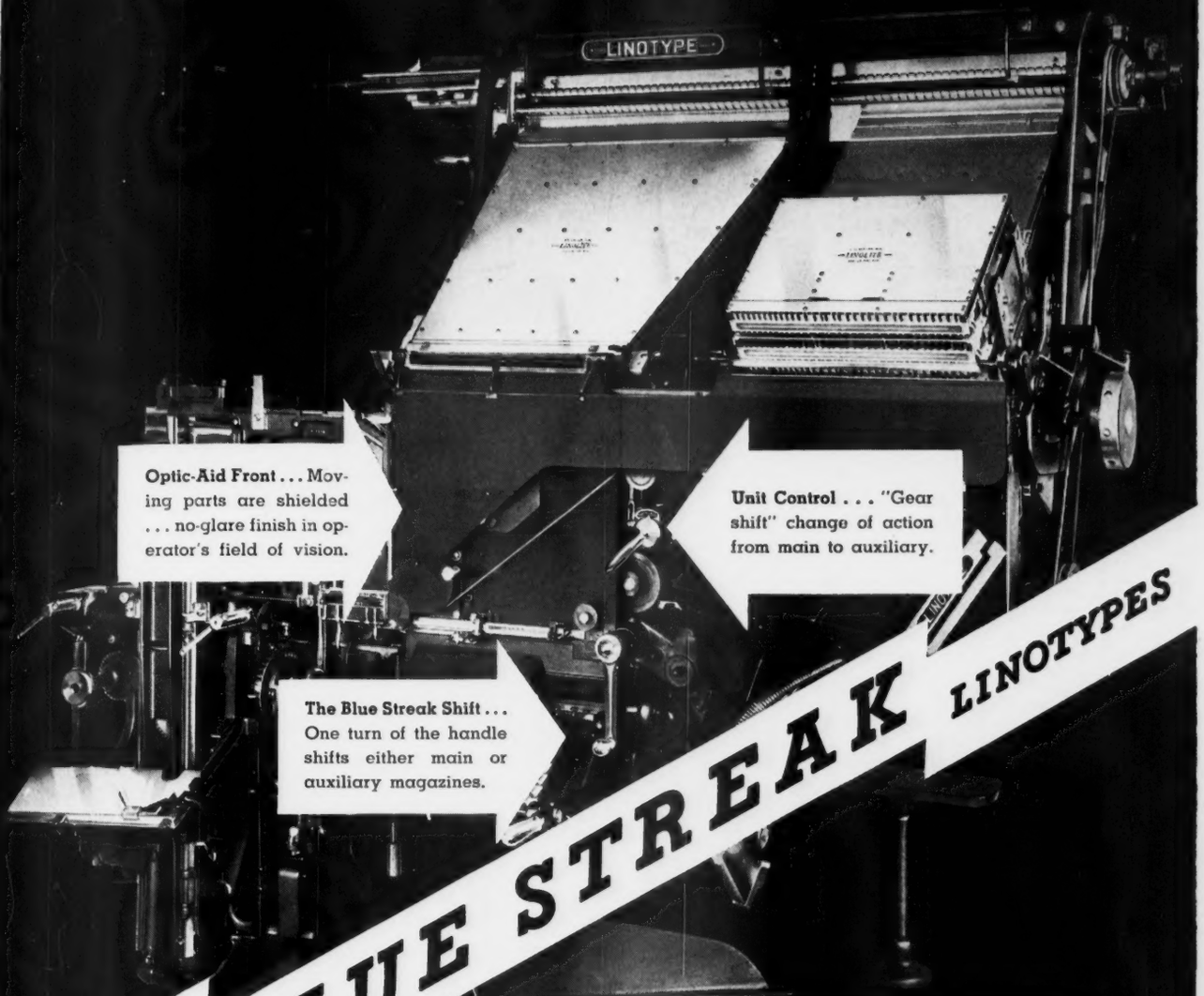
"Thiokol" plates are furnished glued to metal back for use on patent base in the same way as 11-point electrotypes, or mounted on either a wood or metal base. Any printer who has used rubber plates will readily obtain immediate results from "Thiokol" plates.

The following remarks on how to handle "Thiokol" plates on the press have been furnished by a pioneer user* of the new plates:

> In locking up, it should be remembered that "Thiokol" printing plates are held to approximately 0.147 in. This permits leveling the plate off with an underlay. Whenever possible, print from patent base. It is not humanly possible to keep the rock out of a block of wood. This latter observation holds true with any plate.
>
> When making ready a "Thiokol" plate, it is best to start with a manilla and super-light on your packing. This will assure a light impression with which to start. Mark out an underlay for the low spots and place under the plate. Take an impression and mark out an overlay, picking up the balance of the weak spots. Bury the overlay as deeply as possible. In every case, start with full coverage of ink and be sure the rollers are set lightly. It is not necessary to remove any makeready from a "Thiokol" plate. Be sure the ink is soft and not tacky. Any ink can be used, as no dryers will affect "Thiokol." A saving of upwards to thirty per cent with ink will be obtained, depending upon the area of color printed.

*Jas. H. Matthews Co.

TRADE LINOTYPE MARK



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REPRESENTATIVES IN THE PRINCIPAL CITIES OF THE WORLD

Correction

In the June issue of *Printing* EQUIPMENT *Engineer*, in connection with the article by Ralph H. Schwarz and J. Homer Winkler, entitled "Electros Treated By Hardening Method," part of the formula of the average electrotype metal was omitted. The formula should read "Lead (94%), tin (3%) and antimony (3%)." In the article as published the 3% antimony content was omitted from the formula printed in the second paragraph on page 9.

Lighting

For Printing Plant Improved by Detailed Engineering Study

III—PROGRESS REPORT*

IN SPEAKING of night run difficulties, first there is a very common tendency or desire to place the daylight fixtures over or on the side opposite (of the inspection table or delivery stack) than that from which the sheets are observed. The correct procedure is to have the daylight fixture towards the same side of the table as the observer. A number of printers by experiment have learned this for themselves. The reason back of it is as follows: Grease inks exhibit a surface "shine." There is specular reflection, or in other words, a "mirror-effect," and like any common mirror, such ink is prone to reflect the light source image rather than its own color. This is illustrated in Figs. 12 and 13, June issue.

Another method of eliminating the undesirable component of light is to tilt the surface on which the proof rests. This cannot be done at the delivery end of the press, but it may be done at the inspection table. This method is almost compulsory in those cases where very large proofs must be inspected and the pressman leans far over with head close to the sheet. With the proper tilt, the undesirable light component is reflected back in a direction below eye level and is therefore harmless.

One lighting unit for small tables (40-inch or less) and two lighting units for large tables (60 to 70 inches) are recommended to secure uniformity of illumination over the work.

Another reason why printers have trouble on color is this: They will purchase artificial daylight equipment for the inspection table. The equipment may be first class in every respect, but of too low wattage and it is rendered useless by the proximity of ordinary Mazda lamps that direct comparatively yellow light on the inspection table. Daylight correction units are often seen in use over a table with a 200-watt bare Mazda lamp hanging not ten feet away. It is useless to expect results under these conditions with daylight intensities under 100 foot-candles. Or, the inspection table may be backed against a wall which is painted a deep ecru color (this seems to be a favorite with many) and this wall reflects colored light over onto the table, mixing with the artificial daylight.

Direct sunlight, or light reflected from a building, entering a window may so alter the color values of the illumination that colors appear materially different to the eye than when illuminated by well diffused daylight, or an adequate color corrected lighting unit. Where color correcting lighting equipment is used at the delivery end of a press and daylight quality varies considerably, it is necessary to eliminate the daylight to maintain constant color value.

Many printers are satisfied merely to install a blue glass lamp in a reflector which may be white or some other color—often brown due to grease and dirt. In the first place, the color temperature is somewhat low (3300 to 3800 deg. K) and the glare is quite objectionable, particularly with enameled paper stock. The uniformity of color temperature also is questionable. To duplicate color exactly in thousands upon thousands of daylight bulbs is an impossible task with a strictly commercial product. The point is that the printer may be using such lamps for his inspection tables. They naturally burn out and must be replaced, perhaps in the middle of a color job. What will the color of the replacement lamp be? Will it be the same as the preceding lamp, or not?

A rather good solution to the whole problem, as it appears to the lighting people at this time, is a table conveniently located with respect to any group of presses, screened to exclude undesirable extraneous light and lighted with a source of known color temperature and proper spectral distribution which is constant and reliable, day and night, regardless of weather conditions or any other factor. The walls of such a screen must be non-selective. That is, they must be either white or gray produced from black and white and no other color, preferably rather a dark gray. This color-inspection screened table may be combined with mark-out booth as shown in Fig. 14, June issue of *Printing* EQUIPMENT *Engineer*.

Inasmuch as pressmen are somewhat disinclined to use closed booths because of the stuffiness and heat, especially during the summer months, it is suggested that the curtains stop short of the floor by about two feet or so and that the ceiling be omitted. The access side of the booth does not need to be closed in inasmuch as the body and head of the operator blocks extraneous light from that side.

Referring again to the illustration, there is a small point in connection with the marking out operation. Most printers use a small-diametered trough with tubular lamps as shown. This produces a very bright image

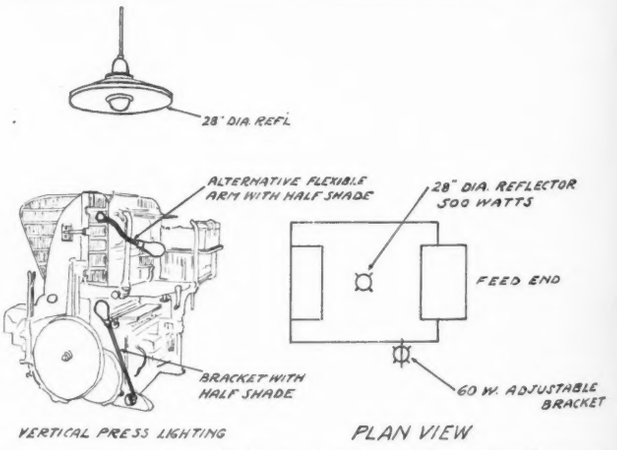

Fig. 16—Illumination of Miehle Vertical Press. The two flexible arms are alternative.

*This is the third installment of a report which was submitted by the Committee on Industrial and School Lighting of the Illuminating Engineering Society, March, 1936.

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GAZETTE, Sterling, Ill.
GAZETTE, Billings, Mont.
NATAL ADVERTISER, Durban, South Africa
NEWS TRIBUNE, Waltham, Mass.
POLISH DAILY NEWS, Detroit, Mich.
RECORD, Wooster, O.
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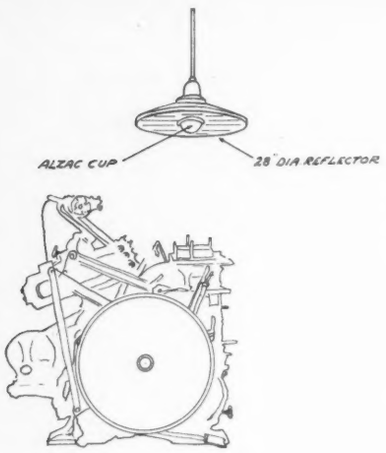


Fig. 17—Platen Press illuminated by type of fixture similar to that shown in Fig. 5, May issue.

on the paper—so bright that it practically obliterates the type impression which the printer is endeavoring to see. A baffle cut from beaver board or 3-ply material and mounted 6 inches or so ahead of the light trough and about 1¼ inches above the sheet will eliminate the glare and enable the type impression to be seen much more readily.

To the printer, black is a color. One of his chief concerns is that the "color" of the black should be right. Everything that has been said in the foregoing section applies, therefore, not only to color printing as popularly conceived, but to ordinary printing, black on white.

Ink Fountain and Rollers—Returning to the press, there are other points that require attention. First, the ink fountain, turn screws, and ink rollers. In some cases these may be lighted from the regular overhead sources either because there are no obstructions or because the feed mechanism may be readily lifted or swung away. However, in a great many cases, particularly the standard flat-bed, two-revolution press, it is almost impossible to see except by installing lights for this purpose. Trough lighting equipment designed either to bolt on the cross-member or tie-rod of the press that usually occurs in front of the fountain, or to the side of the press, is illustrated in Fig. 15, June issue of *Printing* EQUIPMENT *Engineer*. On a small press such as shown, two 40-watt T-10 lamps are used. On a 5/0 press or larger, three such lamps must be used. With a Miehle vertical press, two types of adjustable arms with reflectors have been designed as illustrated in Fig. 16. The arms bolt to a bracket caught under the bottom tie bolt nut on the side of the press, or to grille, as shown.

Fig. 16 shows a 28-inch diameter fixture which has been found acceptable at several points in the press room and elsewhere. In the case of vertical presses it takes care of both sides of the press on account of its rather large diameter. It is glareless, and to a large extent shadowless. It minimizes ink shine and shine from enameled stock. Fig. 17 shows Gordon press illuminated by the same device. (*To Be Continued*)

New Los Angeles Office

Tingue, Brown & Co., 118-120 E. 25th St., New York, manufacturers of printing press blankets, announce the opening of a new office at 723 E. Washington Blvd., Los Angeles, Calif. Harold Payne will be in charge of the new Pacific Coast branch.

Will Operate Presses At Exposition

At a luncheon given recently by H. A. Porter, Vice President in charge of Sales of the Harris Seybold Potter Company to the Exposition Lithograph Company, reports were made concerning the progress of the press installations exhibit at the Great Lakes Exposition.

This group of lithographers, made up of leading men in the industry in Cleveland, are sponsoring a display that will prove one of the most striking on the exposition grounds. One of the units of the exhibit will be a Harris two-color, 41 in. by 54 in. offset press and a Harris 17 in. by 22 in. single-color offset press. The presses will be in actual operation during the entire exposition which will be open for 100 days. The theme of the exhibit is "Modern Offset Lithography" as produced on a Harris.

Mr. Porter announced that E. E. Straus familiarly known as Manny Straus, has joined the Harris Seybold Potter Company organization. Mr. Straus is a former president of the Lithographers National Association and was, until a short time ago, president of the *Courier Journal* Job Printing Company in Louisville.

Carl F. Moellman, chairman of the group, reported that a special Lithograph day would be set aside by the Exposition officials, date of which would be announced later. Much gratification was expressed when the chairman announced the group hoped to be hosts on Lithograph day to the Chicago Litho Club.

Companies Will Cooperate

The International Printing Ink Corporation has just purchased a substantial interest in a Canadian Company known as Ault & Wiborg Limited, which has acquired all the stock of the Ault & Wiborg Corporation of Canada, Limited. The latter company will continue to operate with the same management and personnel, except that it will cooperate closely with IPI.

In this way IPI acquires by license for the United States all the inventions and processes of the Canadian company and the Canadian company acquires by license for Canada all the inventions and processes of IPI. Such new products and processes as Vaporin now being introduced in the United States will be extended to Canada, and it is understood that there are several other valuable licenses to be exchanged.

New Intertype Faces

Two recent additions to Intertype's matrix faces are shown below. *Camera* was designed for use in the composition of greeting cards and other work where its swash letters are so much in demand.

This Paragraph is
set in the 14 Point
Intertype Camera

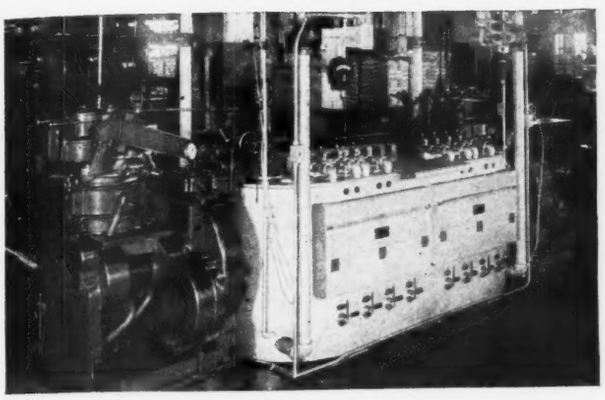
SHADOW

Shadow is Intertype's rendition of the same face as designed by American Type Founders. The size shown is 36 point which is the only size now made.

The Philadelphia Inquirer

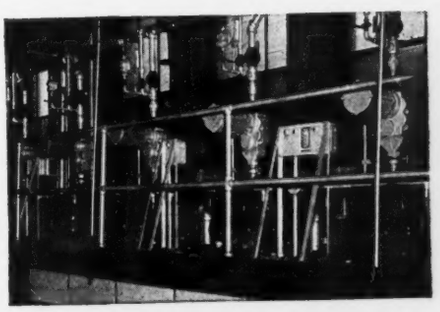
Tailside of the 12 ton Kemp Pot supplying two Wood Automatics. Below, at left, the front view.

Gets PRODUCTION—*PLUS*



The publisher who installs the new Wood Automatic Auto Plates wants something back of them to deliver hot metal - *and plenty of it.* The Philadelphia Inquirer chose *Kemp Immersion Melting with Gas* and the Kemp Pot. Production was the primary requirement. But the Inquirer got *production-plus.* The 12 ton Kemp Pot supplies two automatics with all the metal they can take, and provides as well the fuel economy that only Kemp gas immersion heating can give.

"Economy" is a very loose word. But here's what Kemp means by economy - a saving of 40 percent *or more* in fuel, regardless of what your present installation may be. Kemp stereo melting equipment is sold on a flat, unconditional guarantee to that effect. And what is more, we will put in Kemp equipment, and if, after 30 days, you decide you don't want it, out it comes . . . and you'll never get a bill. If you want more production or less cost, *or both,* you ought to get in touch. Write **The C. M. Kemp Manufacturing Company, 405 East Oliver Street, Baltimore, Maryland**



A battery of five Kemp Industrial Carburetors supplying premixed gas and air to the Kemp Immersion heating elements.

KEMP of BALTIMORE

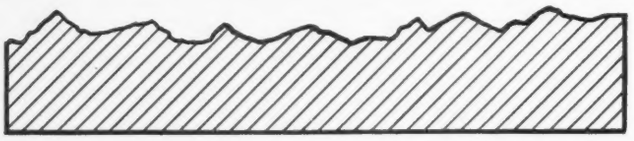


Fig. 7.—This diagram represents a magnified cross-section of a grained lithographic printing plate. The depressions in the upper surface serve as tiny water reservoirs to repel the printing ink. The grained surface is obtained by rotating marbles of glass or other material in a plate-graining machine. Flints of various sized grains are used with water to obtain the abrasive effect.

What Is It?

Elementals of the Lithographic Printing Process Explained

By Adam Henry Reiser

Part II

TYPOGRAPHICAL printing originated about the 1440's, more than three hundred years before lithography. Despite its late start, almost unbelievable strides have been made by lithography. In the February issue of *Printing* Equipment *Engineer*, under the heading "What Is It?", we presented some idea of the versatility of lithography. This many-sidedness is one of the principal reasons for its ever-increasing popularity. Its possibilities are tremendous. Daily we hear of its greater development.

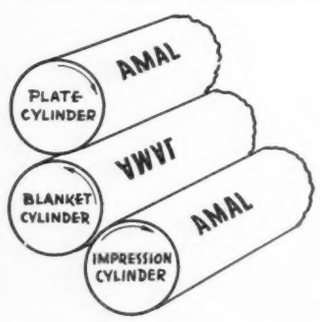
A better understanding of offset lithography would explain the increasing employment of this method of graphic production. And so this month let us examine the offset phase of lithography.

Fundamental Differences

Fundamentally, modern offset lithography differs from other printing methods in many ways:

1. In offset lithography, instead of printing direct from the form to the stock or paper of the job, printing is done from a rubber blanket to the sheet (See Figure 6*). This is true whether the image on the press plate is in relief, intaglio, or planographic. (See Figures 3, 4, 5*).
2. Due to this first condition, the image or work appears in a positive or correct manner on the press plate. In any other printing method, the characters always assume a negative or backward position on the press plate or printing medium.
3. In wet offset lithography, dampers are used to keep parts of the plate free from ink. The preceding article treated of this phase on page 22 of the February issue under "Dry and Wet Lithography."
4. Inks and materials vary considerably from those used by other graphic methods.
   A. In press plate production for lithography, one method makes use of a greasy ink to get the image to hold when transferred from one surface to another. Chemicals are then used to keep white or blank parts clean on the plate, so that ink will not be accepted. This is where lithography gets its name "Chemical Printing."
   B. In offset lithography, special inks yield the best results in printing. Two reasons are apparent for this:
      (a) The ink must be quite concentrated to get the depth of color and the required tinctorial strength. Other methods pile the color to get depth.
      (b) The ink used in printing must be of such character as to enable it to keep "alive" the greasy base of the lithographic image.
5. Makeready is slight in comparison with the typographical method. Lithography, with its flat metal plate running from 0.006 in. to 0.030 in. thick, needs no building up or makeready. Days are required to make ready on some jobs to get even printing in all parts of the form in the typographical method. In lithography, however, from two to four hours is spent on two-color presses to get color, position, and register.

*Where reference is made to Figures 1 to 6 inclusive, it is understood that reference is made to the article on pages 20-22, of the February issue of *Printing* Equipment *Engineer*.



Word reads correctly on the press plate cylinder.

When impression is made from plate to rubber cylinder the word reads backward.

When paper or stock takes its impression from the rubber blanket, the word reads forward again.

Fig. 8.—Illustration of the position occupied by the image "AMAL" on each of the three main cylinders of an offset printing press. Note how the word "AMAL" starts out reading forward, then transfers or "offsets" to a backward or reverse reading, to end reading correctly on the paper on the impression cylinder.

Production Scheme

The foregoing gives a general picture of lithography. To get the more specific aspects, we shall follow the production sequence. Let us assume that a customer has an idea for the advertisement of his product. He wants a new type of label, showcard, letterhead, or any other printed form. The customer's message is relayed to the sketch artist, who interprets it in terms of printing by means of a sketch in colors to size.

When the customer O.K.'s the sketch, there are three channels open for actual production: (a) If the job be of sufficient size to warrant a one-up printing, it may be drawn direct to the press plate, or produced photographically by photo-lithography; (b) if the printed sheet is to contain many subjects, they may be drawn individually, and then hand-transferred to a press plate in multiple groups, or (e) photo-lithography could be employed. Of course, the character of the job determines the particular method. With the proper method selected, there now remain certain other factors to consider.

Offset Work is Reversed

On any offset job it must be remembered that the image assumes a correct forward position on the plate. The reason for this is partly explained by the diagramatic representation (Figure 6*) of the litho-offset printing press. It will be noted that there is a double ink transfer due to the introduction in lithography of a blanket cylinder. Using Figure 8, for reference, we find the

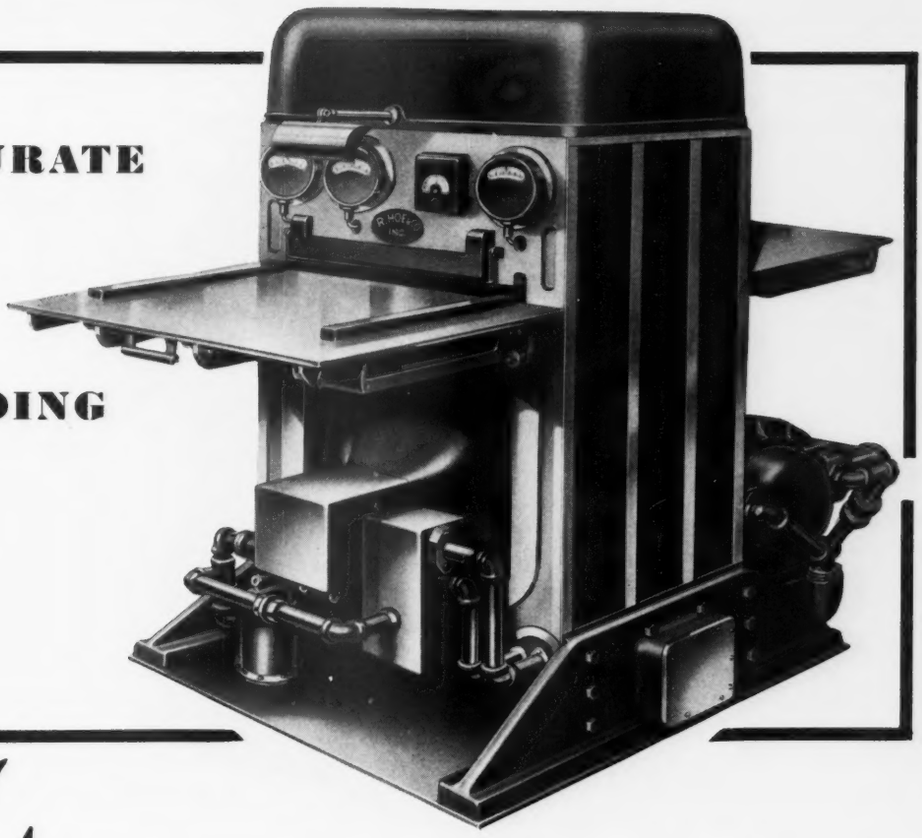
(*Continued on Page 41*)

MORE ACCURATE

SPEEDIER

MAT MOULDING

WITH THE



New HOE *direct-pressure* PRESS

To meet the present demand for direct-pressure matrix moulding which is especially apparent in magazine and newspaper color work, Hoe announces a *new* Hydraulic Matrix Moulding Press designed to provide the greatest accuracy and the utmost moulding speed. Its accuracy is the result of the engineering skill attained by Hoe during 60 years of building hydraulic presses. Capable of moulding a mat in four seconds, it is obviously and by far the speediest machine on the market.

It is unique among moulding presses for its rugged construction and powerful impression. The platen measures 28″x 32″ and the press is driven by a double-end shaft, ball-bearing, 7½″ h.p. motor. An exceptionally large ram... 26½″ diameter... provides a greater pressure area and assures smoother operation.

Simplicity and unusual convenience of operation are notable characteristics of this Hoe Matrix Moulding Press. Complicated mechanism has been avoided, a simple push button serving to set the press in operation. The base of the press measures 64″x 72″. The overall floor space occupied is 46″x 100″. Approximate shipping weight, including motor equipment, 10 tons.

If you are interested in speedier, more accurate ... direct-pressure ... mat moulding, write for additional information. R. Hoe & Co., Inc. *General Offices:* 910 E. 138th St. (at East River), New York. *Branches:* Boston .... San Francisco .... Chicago.

HOE *direct-pressure* HYDRAULIC **MATRIX MOULDING PRESS**

Do You Have Control of Printed Forms in Your Plant?

Here is Described a Perpetual Printed Stock Storage Inventory

By IRA D. PILLIARD

A FEW years ago, the superintendent of a private printing plant, that had catered to the needs of a large institution having more than fifty department heads, each of which was authorized to devise and order printed forms needed for his or her department, harassed by the multitude of *rush* orders that came daily to his desk, sought desperately for some set-up that would bring a semblance of order into a situation that had grown almost chaotic.

Not only did the department heads demand rushed reprintings of depleted supplies, the status of which, all too frequently, had not been inquired into until the last sheet or card had been used, but in not a few instances these matters were entrusted to the individual clerks in a department. The climax came when, over a period of a few months, one form in general use had been ordered to nineteen separate printings, each a run of only a thousand copies.

The system now installed enables the printing department to effect many economies and to eliminate many bad features that had long been considered "necessary evils."

Among these may be enumerated:

First, although, because of the nature of the business, the volume of work, year after year, remains fairly constant, it was found possible to cut the work-week from 48 to 40 hours per week for the composing room and press room. Frequent overtime sessions, at time-and-a-half rates, which had been the rule before, are now practically eliminated.

Second, the peaks of production have been leveled off into the valleys and a uniform flow of work is now secured, Formerly, January and February were the lean months, and July, August, and September represented the months of peak load. With the present set-up, much of the work that was formerly rushed through in July and August is now printed in January and February and the work of the former rush months is now "taken in stride."

Third, a uniform number of employees can now be maintained throughout the year. There is no extra hiring and breaking in of new help during the peak-load months with the subsequent undesirable layoffs when the rush is over.

Fourth, it has, with the possible exception of forms newly designed, eliminated *rush* jobs, with all the ills that attend in their train. The printing department is now enabled to anticipate the needs of the many departments and can and does have an adequate supply of printed forms in stock at all times.

Fifth, much "guesstimating" as to the quantities to be printed has been eliminated. Scientific control determines the quantity to be printed and when it shall be printed.

Sixth, hoarding of printed supplies in desks and cabinets has been largely eliminated, because the personnel of the institution now has that feeling of security which comes from knowing that adequate supplies are in storage at all times and that these may be readily obtained. The elimination of hoarding has saved several tons of paper annually.

Seventh, the relations of the printing department with the other departments have been reversed. The printing department now informs the other department heads concerning when they shall order and how much. When the red indicator tab shows that only an eight-weeks' supply of any form remains, the department heads concerned are notified of the fact and are requested to return the sample copy, submitted for the purpose, with any needed revisions indicated thereon. Two weeks are allowed department heads for the calling of any conferences necessary to consider such revisions. If no reply is forthcoming at the end of that period, the job, if an active one, is automatically scheduled for reprinting. Such a plan gives the printing department from two to four weeks to replenish the supply.

Eighth, much "gang printing" can now be done. Whereas, formerly practically every job was scheduled through the plant on an "individual" basis due to the emergency, now forms using stock of the same color and weight can be grouped for gang printing. Thus, the chases are kept filled and the maximum of product secured for each press impression.

Ninth, a part of the routine requires that a copy of the latest edition be attached to the record cards. This copy is always referred to before ordering and before Okeying a form and this precaution has effectually eliminated going to press with the plates of an obsolete form—a not infrequent happening under the old system when someone submitted as copy an old form found in the desk that had perhaps been superseded by other revisions.

A detailed examination of a specimen record card for the purpose of interpreting some of the information that it contains may prove profitable. Reading the lowest line on the card, Fig. 1, we find that the number of the form is *300:42* and that it is a Purchase Order, gathered in triplicate. The right-hand edge of the movable, red celluloid tab (the wide tab) indicates that an eight-weeks' supply is in stock. The set-up in this particular plant requires that an order for a reprint be placed whenever a supply is drawn upon to this extent. The green tab (the long vertical marker appearing in the lower right-hand corner) indicates that this has been done. The numeral *4*, indicating the fourth week, the reader will discover is not printed. A black arrow or triangle in its place marks the danger zone, beyond which the available printed supply should not be permitted to go.

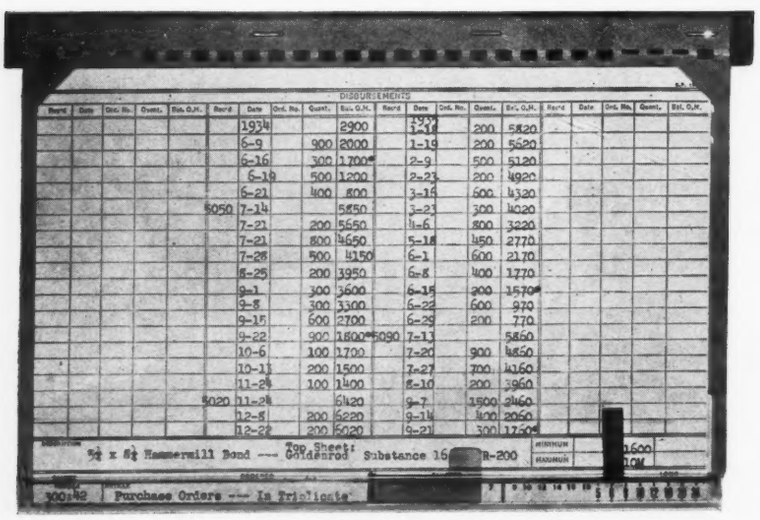


Fig. 1.—Front side of Kardex Visible double-faced perpetual record and specification card for use in keeping track of the supply of printed forms automatically in any private plant where a number of forms of different kinds are used. The original (exclusive of the tabs) is 5¾ in. high and 8⅜ in. wide. Besides providing a means for showing the quantity of any form on hand at all times, the card indicates when to reprint the form, paper stock specifications, size of form and maximum-and-minimum quantities are indicated in the lower part of the card.

The second line from the bottom imparts the information that the size of the finished job is 5¼ in. by 8¼ in. and that Hammermill bond, substance 16, goldenrod, is specified for the top sheet.

R-200 signifies that the average consumption rate of this form is 200 sets per week. The second line further discloses that the annual consumption approximates 10M sets and that new supplies should be requisitioned when this form reaches a minimum of 1600 sets.

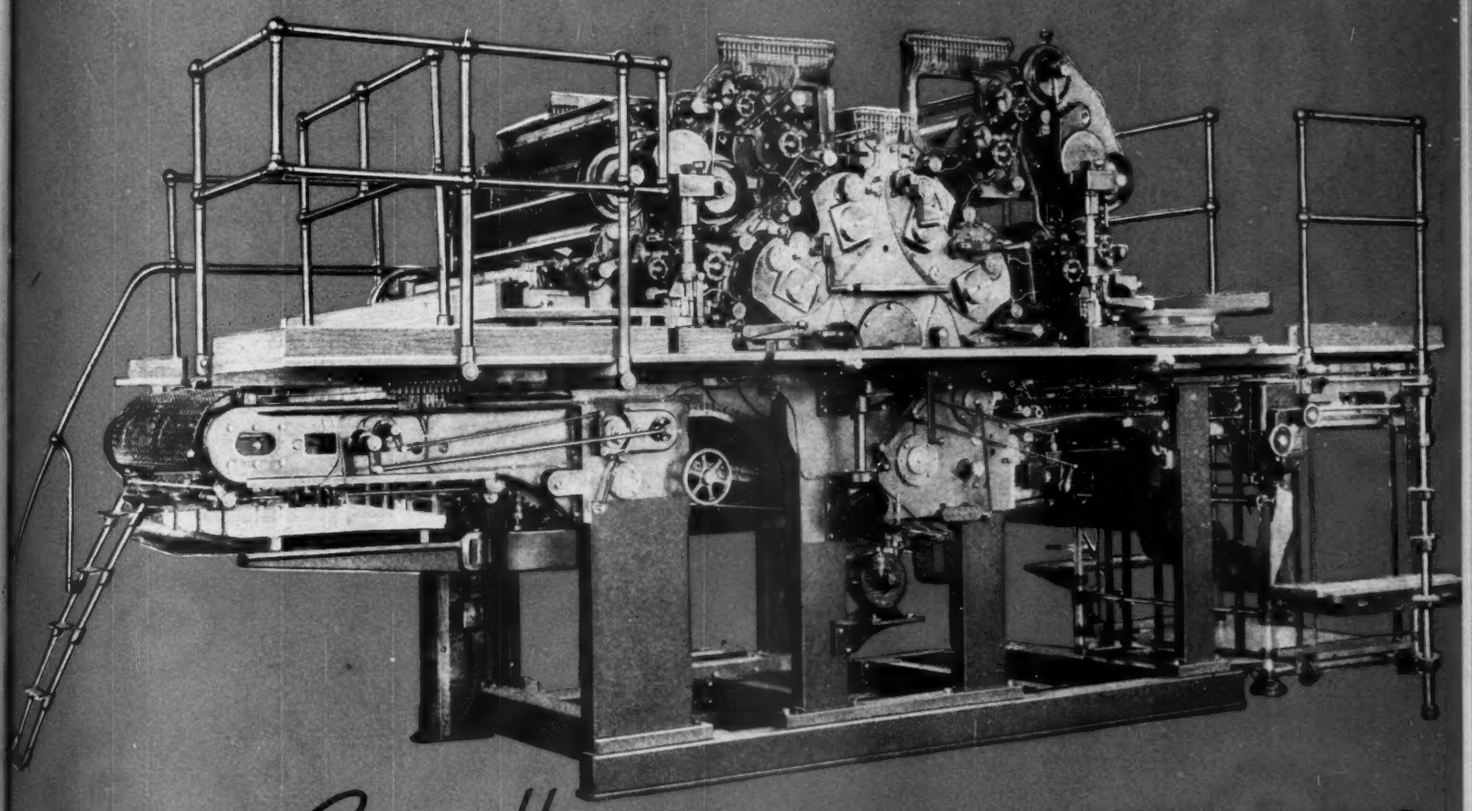
The left-hand columns, under the heading "Disbursements," show that reprint orders, each approximating 5M sets, were added to the stock on hand on these dates: July 14, 1934; November 14, 1934; and July 13, 1935. The asterisks appear-

COTTRELL *offers*

- the latest developments in four- and five-color printing
- regular production speeds up to 5500 four-color sheets an hour, 25 x 38, and up to 4500 sheets an hour, four or five colors, as large as 50 x 72
- a standardized 25 x 38 four-color press — moderately priced
- dependable design and construction — backed by experience

C. B. COTTRELL & SONS CO., WESTERLY, R. I.

NEW YORK : 25 EAST 26th STREET • CHICAGO : 332 SOUTH MICHIGAN AVENUE
SMYTH-HORNE, LTD., 1-3, BALDWINS PLACE, GRAY'S INN ROAD, LONDON, E. C. 1



TYPICAL *Cottrell* FOUR-COLOR ROTARY PRESS

The regular day-in-day-out speed of this particular press, printing standard magazine pages, 16 up, is 4300 four-color sheets per hour

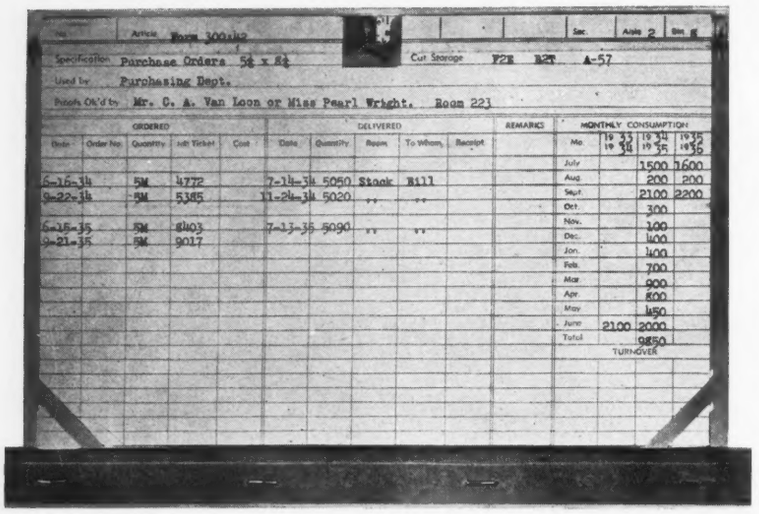


Fig. 2.—Reverse side of double-faced perpetual record and specification card for automatically keeping track of printed forms used in any private plant. This side of the card gives location of printed stock in the storage room. Line 2 gives information respecting the location of plates and type to be used in printing the form. Under the heading "Ordered" are recorded dates when reprints were received, the amounts and job ticket number. The record at the right under the heading "Monthly Consumption," furnishes information as to the quantities of the form used from month to month, and when peak consumption may be expected.

ing after the figures 1700, 1800, 1570, and 1760 respectively (fourth column) indicate that a minimum had been reached and that replacement orders had been issued upon the dates given in the second column.

The dates in the second column and the figures in the third column show the quantities that were requisitioned. Those in the fourth column supply a perpetual inventory of the amount of printed stock in storage.

Turning the card to inspect the reverse side, Fig. 2, we find that the right-hand side of the top line informs us that the printed stock is stored in Aisle 2, Bin 8, of the storage room. Line 2 gives us some information concerning the printing plates. F2E is interpreted thus: Fronts, two, electrotypes. B2T signifies: Backs, two, in type. A-57 informs the initiated that the plates and the type set-ups may be found in Galley 57, Bank A.

How many set-ups the shop possesses, if any, and whether the forms are plated or are in type is valuable information to have when writing the specifications upon the job ticket. Knowledge of these important facts enables the one planning the job to decide many important points without the necessity of leaving his desk. Among other things, these known facts would serve to indicate the size and the color of the stock required, the size of the press needed to print the job, and the amount of new typesetting or electrotyping to be done to complete the work.

Line 4 imparts the information that proofs are to be sent to Dept. 223 and that the proofs must be read and approved by Mr. Van Loon or his chief clerk, Miss Wright.

The data submitted under the heading "Ordered" gives the dates when reprint orders were received, the amounts, and the job ticket number. Under "Delivered" are given the dates, the actual bindery count, the place, and to whom delivered.

The "Monthly Consumption" column furnishes positive proof of the amounts used month-by-month and plainly indicates when to expect peak consumption.

A copy of the latest form printed is inserted, as a matter of routine, between the two cards shown here as Figs. 1 and 2. So placed, it is readily accessible for reference. The time-consuming task of hunting through stacks of old job tickets and the long delays occasioned by the necessity of sending to the stock room for a sample copy are entirely eliminated. Formerly, the foregoing systems plus specimen books were relied upon. The specimen books were seldom kept up to date. The chances for error were all too numerous. This system has proved to be as "fool-proof" as any that can be devised.

The system described here somewhat at length is known by the trade name "Kardex Visible" and is patented and marketed by Remington Rand, Inc.

Approximately one hundred cards are filed flat in each shallow, steel drawer, and, with a glance, one can readily determine the status of any selected job or any number of jobs. We confidently believe that such a system will prove invaluable to any private printing plant.

Books Received

Account of Making of Oxford Lectern Bible

THOSE mechanical executives who have been permitted to see the Oxford Lectern Bible and to hear Frank Sherman tell about its production, as well as those who have not had the opportunity, will be interested to know that a booklet entitled "An Account of the Making of the Oxford Lectern Bible" is now available upon request to the Lanston Monotype Machine Company.

The booklet contains an account written by Bruce Rogers himself which tells how he approached the problem of establishing the format and typographic arrangement of the Oxford Lectern Bible. The booklet was designed by Mr. Rogers and contains a four-page insert in which are shown reproductions of pages from the Bible as well as "trial" pages used in establishing the final design. The booklet is set in Bible Centaur, the same type face used in printing the Oxford Lectern Bible.

An appreciative and informative "outsert" or leaflet attached to the booklet contains some interesting technical and publication data about the Oxford Bible.

Newspaper Makeup

A THOROUGH analysis of the newspaper from the standpoint of its appearance and eye appeal is contained in John E. Allen's book "Newspaper Makeup." It doesn't seem that a single feature which would affect the makeup of today's newspaper from the front page, throughout the paper, to its last page has been neglected by the author.

While this book has been written especially for the benefit of active newspaper workers, presumably in the editorial department, and for the use of schools of journalism, yet nearly all of the contents of the book will appeal to mechanical and production executives, especially composing room superintendents and layout men who are in intimate contact with the physical appearance of the type pages and who, by the same token, have no little voice in its makeup and the choice of materials used in obtaining effects which characterize the well made-up paper.

(Continued on Page 39)

Announcing the POWER-LIFT FORM FILE

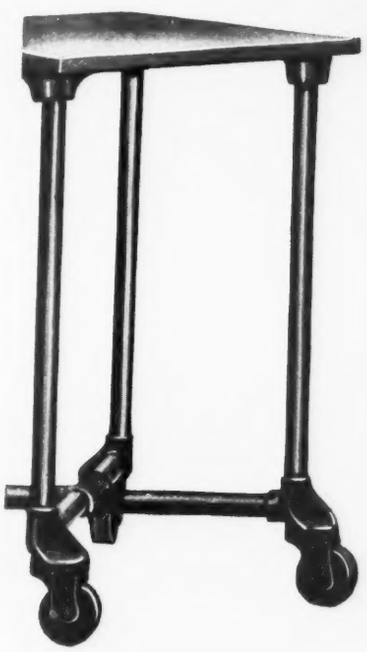
Now comes this startling and revolutionary

Composing Room Space Economizer

16 forms and chases filed in space not much larger than one form.

Any form instantly available by a touch of the control lever, raising or lowering filing positions to truck level.

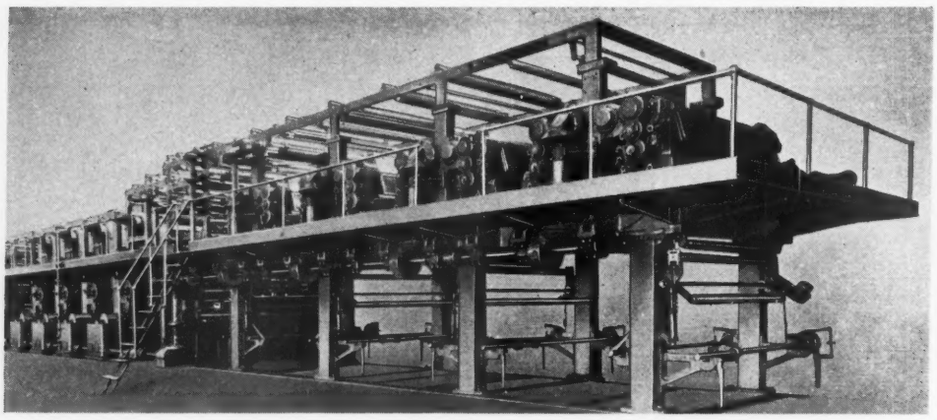
COMPLETE STORY FOR THE ASKING



STAHI NEWSPAPER SUPPLY COMPANY, INC.

1020 CROCKER STREET
LOS ANGELES, CALIF.

417 OREGONIAN BLDG.
PORTLAND, OREGON



Five-Unit Multi-Color Gravure Press arranged to operate in combination with Four-Unit Superspeed Octuple Press. This press was shipped recently to the Consolidated Newspapers, Inc., Sydney, Australia.

Unique Press Installation

The R. Hoe & Company plant recently was a scene of considerable activity with the visits of numerous people prominent in rotogravure printing circles, as well as representatives of the mechanical staff of several large newspaper publications inspecting the new Combination Rotogravure and Newspaper Press which R. Hoe & Co. is shipping to the Consolidated Newspapers, Ltd., Sydney, Australia. This press incorporates five Hoe Super-Production Multi-Color Gravure Press Units arranged to operate in combination with a Hoe 4-Unit Superspeed Octuple Press which is said to be the first high-speed combination press of its kind ever built.

The 5-Unit Rotogravure end is similar in construction to the thirteen units recently furnished and installed in the plant of Neo-Gravure, New York, N. Y. These rotogravure units embody features such as high-speed ink fountains with circulating ink supply system, electrically-operated impression arrangement, Hoe 3-arm paper roll reel with electrically-operated automatic tension, ventilating and drying system, and so on.

Coupled to this rotogravure press in line arrangement are four Hoe Straight-Pattern Superspeed Units with a Double Former Superspeed Folder mounted on extra heavy design cast-iron substructure, designed for underneath paper roll feed and equipped with Hoe Floating Roller Automatic Tension Devices.

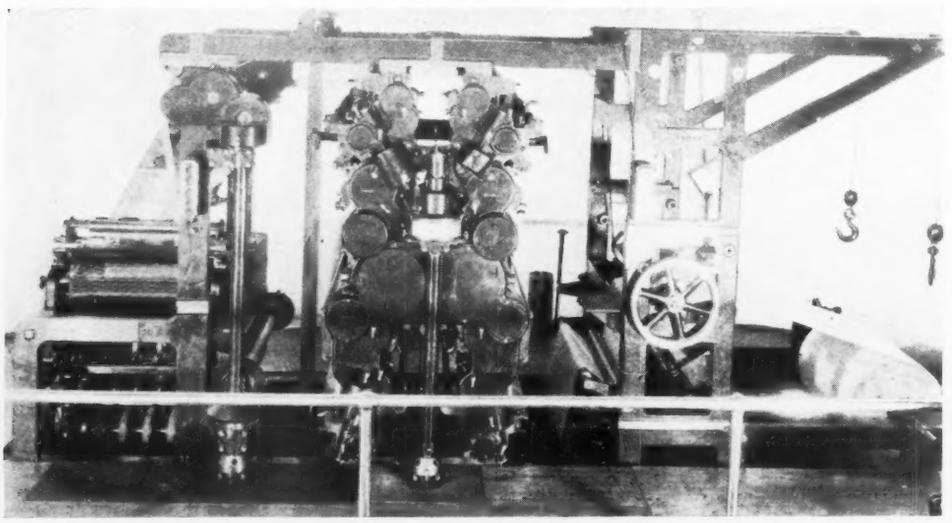
This combination press, it is said, will produce at high speed an extensive variety of rotogravure and letterpress products, either separately or combined. The letterpress portion will produce up to 64 pages in black and the rotogravure end will produce up to 16 pages, half of which may be in color and half in monotone, to produce a completely associated product up to 80 pages.

The folder is equipped with a stapling device so that all products may be stapled. This device is intended primarily for stapling tabloid products in book form which may be either in letter press or rotogravure, or both combined.

Four-Page Unitubular Press

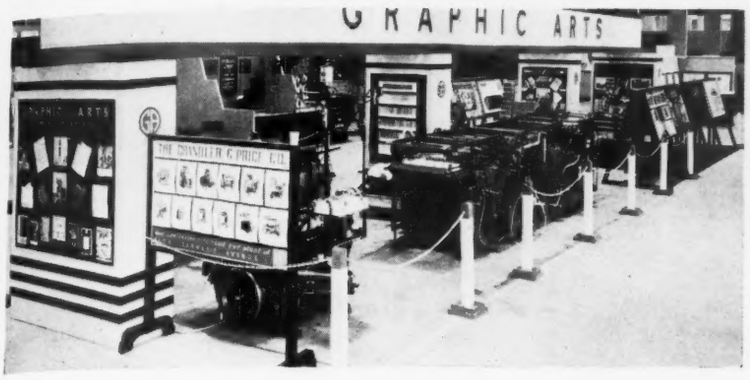
A four-page Unitubular Press with color units was built especially for demonstration purposes and installed by The Duplex Printing Press Company in a convenient location in Chicago during the recent A.N.P.A. Mechanical Conference. Approximately 200 mechanical executives visited the demonstration. Manufacturer states this press was equipped with several new features never before applied to a high-speed web-perfecting rotary press. All of the fountains were equipped with removable, interchangeable ink fountain pans with hinged fountain blades. The folder was equipped with a device for centering the half-page fold while the press was in operation. To demonstrate flexibility of the press for color printing, the unit was arranged so one blanket, one black plate cylinder and one color cylinder could be reversed, to make possible the printing of one

(Continued on Page 28)



View of four-page Unitubular Press exhibited in Chicago at the time of the A.N.P.A. Mechanical Conference, where the unit was arranged so one blanket, one black page cylinder and one color cylinder could be reversed to print one side of the web in three colors and black. One color and black could be printed on both sides of the web with cylinders in reversed arrangement.

Graphic Arts Display At the Great Lakes Exposition
An Interesting Spot For Visiting Mechanical Executives



Thirty-five Cleveland printers, in cooperation with the Cleveland Typothetae, equipment, paper, ink and roller makers, have an impressive Graphic Arts Exhibit in the Hall of Progress at the Great Lakes Exposition in Cleveland which runs from June 27 to October 4. A considerable part of the exhibit is given over to display boards on which are shown specimens of the work executed by the participating printers. Of no little interest to the general public and visiting mechanical executives is the equipment exhibit which is in continuous operation daily.

Printing equipment in operation at the exhibit includes a Miehle two-color (two-unit) printing press, a Miehle Vertical, Brandtjen & Kluge 10 in. by 15 in. Automatic Press and two models of Dexter Cleveland folding machines.

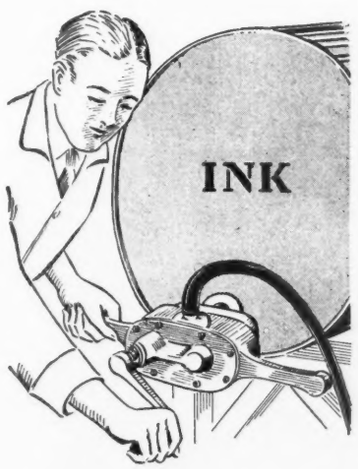
Seven paper companies are showing samples of fine papers.

Several ink companies are cooperating and are exhibiting specimen ink colors.

An ATF Non-Offset Gun forms a part of the exhibit.

Sam'l Bingham's Son Mfg. Co. furnished the rollers for the Miehle two-color press.

The Chandler & Price Co., Cleveland, has a mounted pictorial exhibit showing a number of views of that company's products. The company is sending an invitation and a road map which will assist visiting executives in locating the C. & P. factory at the time of attending the Great Lakes Exposition in Cleveland.

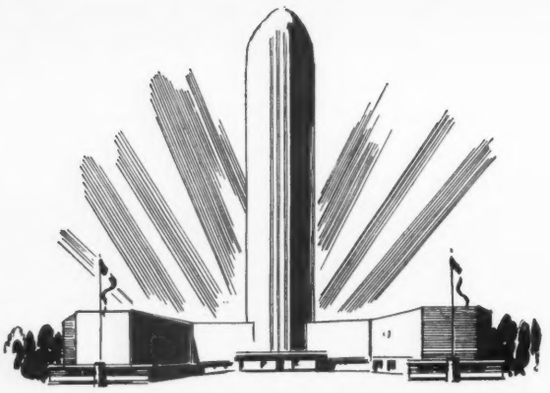


A.P.S. INK PUMP

THIS improved pump screws into the Ink Barrel and delivers a steady, full flow of ink. It is ruggedly constructed in every detail and fully guaranteed. The ease, speed and ink saving in fill-press fountains with this pump soon pays for the equipment many times over. Sold complete with eight feet of hose.

PRICED AT
$21

AMERICAN PUBLISHERS SUPPLY
WEST LYNN, MASSACHUSETTS



COVERING THE STORY OF THE

TEXAS CENTENNIAL

●The story of the Texas Centennial is one of the biggest in 1936 and Imperial takes this opportunity to congratulate Texas on her achievements. Throughout the state, Texas newspapers are reporting daily the happenings at each local celebration of the Centennial. It is significant that most of these stories are printed from Imperial Type Metals. The Texas dailies named below find in Imperial the means of presenting these stories to their reading audiences in clean, beautifully printed pages.

REPORTER NEWS CO.	Abilene
GLOBE NEWS	Amarillo
AMERICAN STATESMAN	Austin
BIG SPRING HERALD	Big Spring
HERALD	Brownsville
DAILY INDEX	Childress
CORSICANA DAILY SUN	Corsicana
DALHART PUBLISHING CO. (Texan)	Dalhart
HERALD PUBLISHING CO.	Denison
EL PASO POST	El Paso
EL PASO TIMES	El Paso
WORLD NEWS and EL CONTINENTAL	El Paso
FT. WORTH PRESS	Ft. Worth
NEWS TRIBUNE	Galveston
VALLEY MORNING STAR	Harlingen
NEWS	Henderson
CHRONICLE	Houston
HOUSTON PRESS	Houston
DAILY RACING FORM	Houston
LAREDO TIMES	Laredo
LONGVIEW DAILY NEWS and JOURNAL	Longview
AVALANCHE JOURNAL	Lubbock
NEWS MESSENGER	Marshall
PAMPA DAILY NEWS	Pampa
PARIS EVENING NEWS	Paris
HERALD-NEWS	Plainview
NEWS	Port Arthur
LA PRENSA	San Antonio
SAN MARCOS RECORD and DAILY NEWS	San Marcos
SWEETWATER REPORTER	Sweetwater
TEXARKANA NEWSPAPERS, Inc.	Texarkana
COURIER-TIMES	Tyler
RECORD	Vernon
TIMES	Wichita Falls

This state-wide Imperial coverage is repeated in every state of the Union. The newspapers and printers of the United States believe in and stick to

Imperial

IMPERIAL TYPE METAL COMPANY

PHILADELPHIA • NEW YORK • LOS ANGELES • CHICAGO

Unitubular

(*Continued from Page 26*)

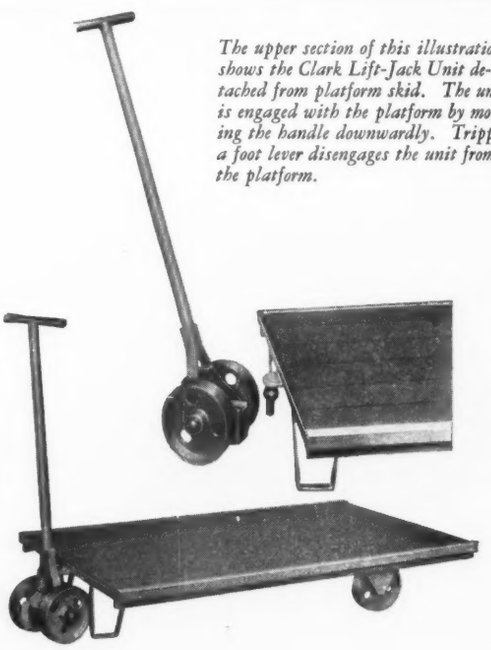
side of the web in three colors and black. When cylinders were not reversed, one color and black on both sides of the web could be printed. It was demonstrated that multi-color could be run at speeds ranging from 10,000 to 37,000, without register variation or the need of adjustment.

Duplex engineers have designed and perfected the removable and interchangeable ink pan fountain especially for use in color printing. It is only necessary to release the pan, lift back the hinged fountain blade for cleaning, wash the rollers and insert another pan containing the proper color. While the press is running at any speed, the operator can turn a dial to adjust the half-page fold for whatever speed the press is running.

Other improvements include quick lock-up on all plate cylinders, the plate being held in place by clips operated by a single screw; marginal and circumferential register mechanisms on all plate cylinders; forged steel plate cylinders with micrometer straight line impression adjustments; individual units and folders driven by vertical shafts with roller bearings and ball bearing thrusts; and every unit protected by safety shearing pins. All printing cylinders and inking rollers wherever practical are equipped with anti-friction bearings.

Clark Lift-Jack Units

It has been announced by the All Steel Welded Truck Corporation that a new line of floor trucks with lift-jack feature is available for the purpose of moving paper stock and other bulky materials from one part of the printing plant to the other. When a load of paper stock or other material has been spotted on the floor



The upper section of this illustration shows the Clark Lift-Jack Unit detached from platform skid. The unit is engaged with the platform by moving the handle downwardly. Tripping a foot lever disengages the unit from the platform.

where it is to rest, the Jack Unit may be disengaged from the platform and taken to another platform for shifting to another position.

The Jack Unit, as shown in the illustration, consists of a reinforced steel housing enclosing a fulcrum lift mechanism designed to produce a lifting power of 6000 lbs. distributed weight with only 76 lbs. handle pressure.

It is possible to contact and lift the platform skid from right or left angles or from a direct in-front position. In the angle position a space of only 12 in. is required to make proper engagement of the Jack Unit with the platform or skid.

The Lift Jack Unit weighs 42 lbs. and is equipped with two wide-face semi-steel wheels 8 in. diam. The wheels are fitted with Hyatt roller bearings. The handle is of tubular steel.

A guide plate is provided in the jack socket to facilitate engaging the jack socket to a pin on the platform, and when in position, whether approached from right or left angles or head-on, contact is made by bringing the handle forward to horizontal position. This movement of the handle locks the engaging pin in the socket and at the same time raises the platform approx. ¾ in. from the floor. To disengage the jack from the platform, a foot lever is tripped.

A number of different kinds of platforms are furnished. At the front of each platform are fitted the jack engaging pin and two steel legs. Two semi-steel wheels are mounted at the rear of the platform. These wheels are 9 in. diam. and are equipped either with plain or Hyatt type roller bearings.

The SKF Grip-Lock Bearing

The SKF Grip-lock bearing is the latest addition to the SKF line of anti-friction bearings. The Grip-lock principle, it is claimed, offers the advantage of quick, simple application of the bearing without tools of any kind and insures the user of a bearing positively locked to the shaft.

Essentially, the bearing is the conventional, well-known SKF self-aligning extended inner race bearing with an eccentric groove machined in the bore of the inner race. Fitted in the eccentric groove is a piece of

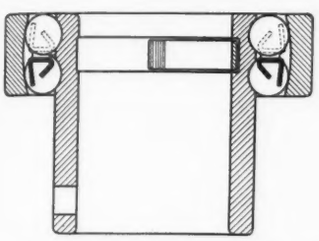


Diagram showing construction of SKF New Grip-Lock Bearing.

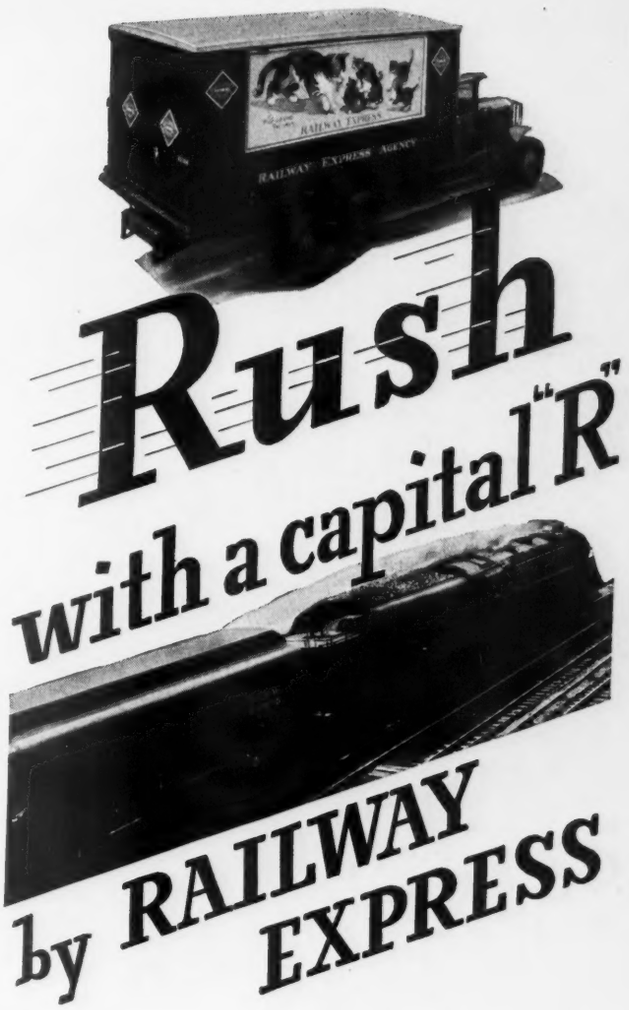
spring steel known as the Grip-lock shoe. When the shoe is in the deepest part of the eccentric groove the bearing may be slipped on the shaft readily. Then, by holding the inner race of the bearing while the shaft turns in the direction of operation, the knurling at the ends of the grip-lock shoe grips the shaft causing the shoe to wedge in the shallow part of the eccentric groove thus securely locking the bearing on the shaft.

Manufacturer states no radial slippage can occur, for the more the load, the tighter the grip-lock. No shaft machining is necessary for assembly purposes.

G.E. Announces New Lamp

A new 85-watt mercury lamp having a light output of 3,000 lumens and an unusually high unit brightness has been introduced commercially by the General Electric Vapor Lamp Company, Hoboken, N. J. The new lamp represents a late step in broadening applications for bulb-type mercury lamps. Its initial application will be in scientific and industrial uses where its small size and unusual brightness make it particularly desirable.

The lamp is unique in construction and operating characteristics. The actual light source is a minute column of mercury vapor, less than an inch long, raised



Getting them through is Railway Express's own specialty. On urgent shipments, such as spare parts and replacements, we can in many instances give overnight service. Railway Express picks up all shipments by fast motor truck, forwards them on swift passenger trains, delivers promptly on arrival. With 23,000 offices at your disposal across the continent, we reach anybody practically anywhere, at any time. All transactions are checked from beginning to end by a receipt at pick-up and another on delivery, and automatically include liability up to $50. It's a through, personal service, no delays, no side-tracking, and no extra charge for this extra-careful handling.

For service or information telephone the nearest Railway Express office.

RAILWAY EXPRESS
AGENCY INC.

NATION-WIDE RAIL-AIR SERVICE

With the **LUDLOW**
Twenty pages of food ads on the night shift

Our ad composition problems have been minimized through the use of the Ludlow, mainly because of the never-ending supply of type on hand at all times.

This is especially noticeable in food market composition for we often set as many as twenty pages of food ads on a single night shift, all of which is Ludlow and keyboard slug produced. We feel that the Ludlow has in no small way been responsible for our ability to meet severe competition in publication work and at the same time maintain quality, and standard wages for our staff of employees.

HAROLD D. WINN
Mechanical Superintendent
HOLLYWOOD CITIZEN-NEWS
Hollywood, California

LUDLOW TYPOGRAPH CO.
2032 Clybourn Avenue + + Chicago, Illinois

Set in members of the Ludlow Tempo family

to an exceptionally high brightness within a sealed quartz tube. This quartz tube is mounted within a Standard T-10 bulb (5½ in. long and 1¼ in. diam.) equipped with a standard screw base.

The restricted area and high unit brightness of the light source also opens up possibilities for the use in projection lamp apparatus and other equipment where light is to be focused or its distribution accurately controlled.

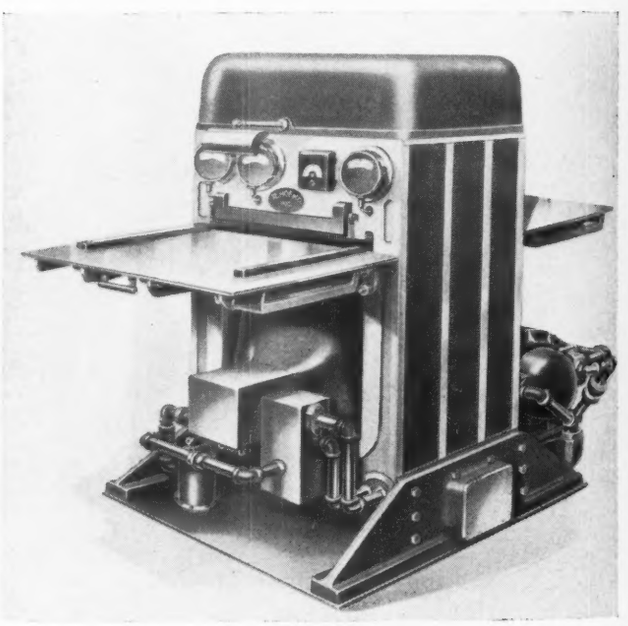
Light from the new lamp possesses color characteristics generally similar to other mercury lamps. Although there is somewhat more red radiation present, the light is still predominantly "bluish" in color quality. Thus it blends well with light from incandescent lamps to produce a pleasing illumination similar in appearance to natural daylight.

In common with other vapor lamps, the new bulb operates through a ballasting type of transformer on standard alternating current circuits. A special line of compact transformers for use with the lamps has been developed concurrently by the General Electric Vapor Lamp Company.

New Direct Pressure Press

A recently conducted survey of newspapers, syndicate plants and jobbers, shows that there is a decided inclination toward direct pressure matrix molding, especially for color work in magazine and newspaper printing. To meet this demand R. Hoe & Co. Inc., New York, N. Y., have developed a Hydraulic Matrix Molding Press which has been designed to meet the requirements for matrix molding.

Manufacturer states it is distinguished for simplicity and convenience of operation, powerfulness, accuracy, speed, automatic features and workmanship. It is



Hoe Hydraulic Matrix Molding Press for magazine and newspaper color work.

equipped with a device for automatically regulating the pressure and heating temperature as well as extracting moisture from the matrices. The pushing of a button starts it in operation after the gauge has been set for the required molding pressure. Aprons provided at both the front and rear of the press are insulated from the platen to facilitate the handling of forms. A pressure gauge and a temperature control gauge are located at the front of the press and if desired a duplicate pres-

sure gauge can be provided at the rear of the press. The platen is 28 in. by 32 in. and the press is driven by a double-end shaft ball-bearing 7½ in h.p. motor. A 26½ in. diam. ram is used for providing even pressure area and smooth operation. Insulation between the heated platen and the ram intercepts any heat which might be conducted from the platen to the ram.

The motor and pump operate only when the ram is being raised. The press is designed to mold mats in 4 to 5 seconds. In starting up the press, both low and high pressure pumps operate simultaneously and when 50 tons pressure is reached, the valve of the low-pressure pump is tripped automatically, the molding pressure then being exerted by the high-pressure pump.

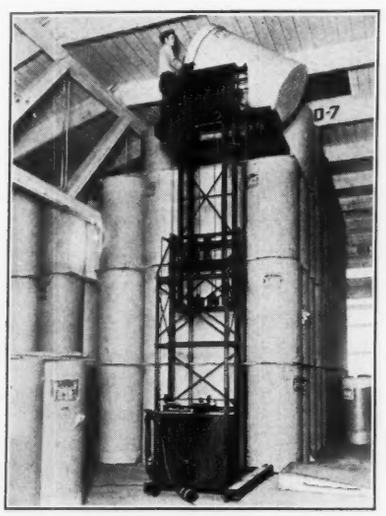
The press occupies an overall floor space of 64 in. by 100 in., the base is 64 in. by 72 in., and the estimated shipping weight including the motor equipment is 10 T. Maximum operating between the anvil and the bed is 2¼ in.

Any further information desired in connection with this new hydraulic matrix molding press will be furnished gladly by the manufacturer direct or requests for information may be addressed to *Printing* EQUIPMENT *Engineer.*

New Paper Roll Stacker

A new portable Elevator or Stacker for stacking or piling heavy rolls of paper on end, to any height is shown in use in a paper warehouse, illustrating an efficient and economical method of handling these bulky and difficult-to-handle rolls.

The stacker is of the telescopic type, extending upward like an extension ladder, has steel arc-welded



View of Lewis-Shepard Portable Paper Roll Elevator and Stacker.

frame, free lifting and maneuvering handle, equipped with roller bearings, cable control, brake, and back brace for extra strength.

Standard design 2000 lbs. capacity, height 20 ft. 6 in., lifts 20 ft., collapsed height 12 ft., platform 60 in. by 72 in., speed 40 ft. per minute, control locking cable on both sides. May be made any special size or capacity. Will pile cases as well as rolls.

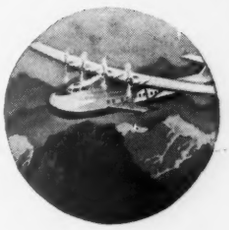
Fully illustrated circular No. 184 on request to Lewis-Shepard Co., direct or in care of *Printing* EQUIPMENT *Engineer.*

Wever Goes to Dayton

W. W. Wever, until recently mechanical superintendent of the Columbus (O.) *Citizen*, is now mechanical superintendent of the Dayton (O.) Daily *News*.

LEADERSHIP ★

★ IN **ENTERPRISE**

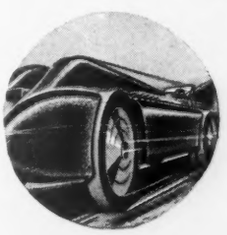


For 95 years Morrill chemists have steadily tested new materials, new methods of combining elements to produce finer news-printing inks. And, as new demands have arisen for finer news-printing at higher speeds—Morrill has always been ready with inks that satisfy every requirement.

★ IN **PERFORMANCE**

Under widely varying pressroom conditions—in the frozen North, under tropical suns, in the humid Islands of the Pacific, in desert countries, and in thousands of American pressrooms from the smallest to the largest—Morrill Inks daily demonstrate their ability to produce a cleaner, brighter, easier-to-read and *more* saleable newspaper.

★ IN **SPEED**



The rising cry for productive speed is answered by Morrill with fast-setting news inks that make easily possible the highest output per hour—plus an excellence of reproduction unknown even a few years ago. And with branches spotted in key cities, Morrill service to publishers matches the outstanding performance expected of and delivered by Morrill Inks.

★ IN **ECONOMY**

Real economy in newsprinting inks involves vital considerations in addition to price. The cost of an hour's delay in your plant operation would pay for ink consumption for many hours. *Morrill eliminates delay****Clarity of text and halftone is today most important to foster advertisers' good-will: *Morrill insures good printing.* That is why Morrill Inks today serve newspapers everywhere with true efficiency and economy.

*In 1935 Morrill delivered 5,019,003 lbs. of news black and 714,043 lbs. of news color inks in excess of 1934. First-quarter 1936, figures show an even greater proportion of increase. More and more publishers are turning to Morrill for enterprising, swift, economical performance.*** If you are having ink difficulties, consult any Morrill branch —without obligation.*

Inks BY **MORRILL**

"STANDARD OF THE NEWSPAPER WORLD"

GEO. H. MORRILL CO.

Division

GENERAL PRINTING INK CORPORATION

100 SIXTH AVE. • NEW YORK, N. Y.

Factories — Norwood, Massachusetts • Tacony, Philadelphia, Pa. Chicago, Ill. • San Francisco, Calif • **Branches** — Boston New York • Philadelphia • Detroit • Chicago • St. Louis Minneapolis • Fort Worth • Los Angeles • San Francisco • Seattle

FOR NOTHING!

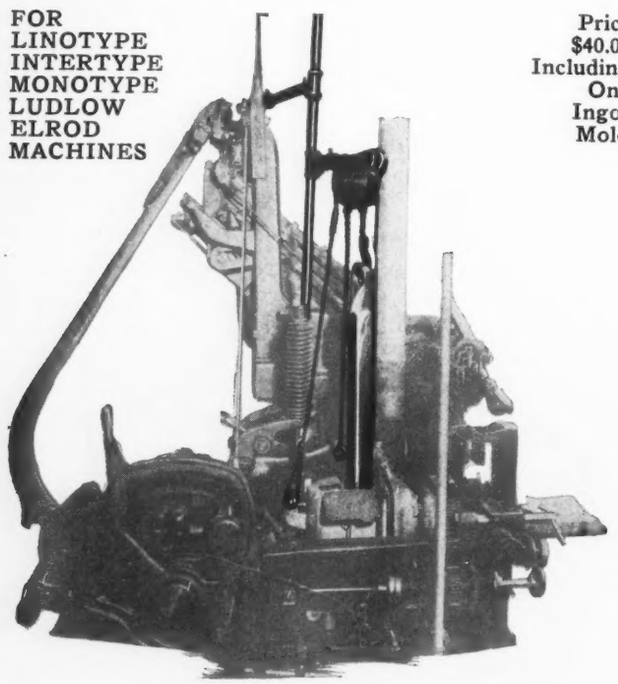
YOU CAN GET A L-U-D-W-I-C-K A-U-T-O-M-A-T-I-C FEEDER

FOR NOTHING

Because in one year's time it will pay for itself thru

1. **Increase in Slug Production**
2. **More Solid Slugs**
3. **Decreased Fuel Consumption**

FOR
LINOTYPE
INTERTYPE
MONOTYPE
LUDLOW
ELROD
MACHINES



Price $40.00 Including One Ingot Mold

Every installation has shown a saving in three directions. . . . This has been so well demonstrated that the great majority of typesetting machines have some form of automatic feeding. . . . Those NOT so equipped are costlier to run.

LUDWICK FEEDERS
WILL BE SENT "ON APPROVAL"
TO RESPONSIBLE CONCERNS

STAR ★ MARK

For Maximum wear and efficiency use ACE BELTS. They are guaranteed for a minimum of a year's service.

LINOTYPE PARTS CORPORATION

NEW YORK
203 Lafayette St.

Agencies
Chicago
Los Angeles

KANSAS CITY
314 W. 10th St.

Power-Lift Form File

The Power Lift Form File, announced recently by Stahi Newspaper Supply Company, Inc., has been designed to economize on the use of composing room floor space, minimize the immediate use of makeup trucks, and to provide a way to file or store forms. Steel filing shelves upon which the forms are placed, are arranged in a column, one above the other. There are sixteen shelves in the file. The filing shelf unit is raised or lowered automatically by means of an electric-hydraulic unit so that any one of the sixteen shelves may be raised or lowered to makeup truck level.

Floor space occupied by the Power-Lift Form File is 25 in. by 40 in. Steel filing shelves, supported on steel rollers, effect easy movement of the forms in and out to working position or in the transferring of forms from and to makeup trucks. Any form is brought to position by the control lever which sets in motion the motor and oil pump which supply power to the hydraulic rams.

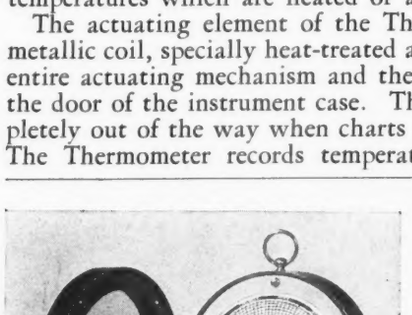
Auxiliary form filing units may be attached to and operated from one Power-Lift Form File by extension of the hydraulic and electric lines to the control positions of the auxiliary unit.

The motor operates only while filing column is being moved up or down. Limit switches provide against the possibility of the top of the shelving column passing beyond the top position in the cage.

Recording Instruments

Two separate recording instruments—a 24-hour portable Recording Thermometer and an Operation Recorder, have been announced by Practical Instrument Company. The Recording Thermometer is employed in printing plants for regular or intermittent checkup of room temperatures which are heated or air-conditioned.

The actuating element of the Thermometer is a bi-metallic coil, specially heat-treated and calibrated. The entire actuating mechanism and the pen are built into the door of the instrument case. The pen swings completely out of the way when charts are being changed. The Thermometer records temperatures in 30 and 60 deg. F. ranges with 2 deg. markings, and 35 deg. C. range with 1 deg. markings.



Charts may be changed on Practical Thermometer or Recorder without disturbing adjustments.

The Operation Recorders are for recording the use of electric current through devices such as motors, lamps, fans, heaters or signs. They are of the electro magnetic type with the armature fastened permanently to the pen arm. Like the Thermometer described above, the pen swings out of the way when the door is opened.

In both of these instruments the charts are self-centering in position as soon as they have been slipped over the flattened hub.

The cases are of black bakelite, 5½ in. wide, 4½ in. deep and 7½ in. high. Total carrying weight is 2½ lbs.

New Haven 36-hour clock movement is furnished. The movement is wound, set and regulated from the rear of the case without opening case or disturbing the chart. Charts are 4 in. diam. and divided into 24 hour intervals. Hours are divided into 15 min. intervals on the Thermometer and Humidity charts and in 10 min. intervals on the Operation Recorder charts.

Further information may be obtained from Practical Instrument Co. direct or through *Printing* EQUIPMENT *Engineer*.

New Ink Pump by APS

Announcement has been made by the American Publishers Supply of a new ink pump for replenishing ink fountains. The APS improved ink pump screws into the ink barrel without the use of wrenches as the necessary handles are a part of its housing. Designed with a syncro-mesh gear arrangement, this pump is said to deliver a steady and full flow of ink. The pump is said to be ruggedly constructed. Eight feet of special acid-resisting ink hose is furnished with the pump.

Shows ink barrel with hand pump attached.

New Intertype Showroom

One of the most attractive industrial showrooms in the country was opened recently by the Intertype Corporation at its Brooklyn headquarters, 360 Furman St.

The showroom is finished in blue-green with mirrored walls, and contains aluminum and red leather furnishings. The floor is terrazzo, the venetian blinds are blue-green to match the walls, and Revolite of a deeper blue-green is used for the draperies. A feature of this new showroom is the indirect lighting, for which practically the entire ceiling is employed.

The room is designed to display six Intertypes. These will include some of the new four-magazine units announced recently, and the latest auxiliary equipment such as automatic quadding and centering, low-slug quadding, and the Intertype one-machine all-slug system.

BURGESS CHROME MATS

The Advertising Manager Says--

For finer and better reproduction of advertisements be sure you specify BURGESS Chrome Syndicate Mats . . . . . .

●

Burgess Cellulose Co.
Freeport, Illinois

CHROME MATS
A LABORATORY PRODUCT
MADE IN U. S. A.

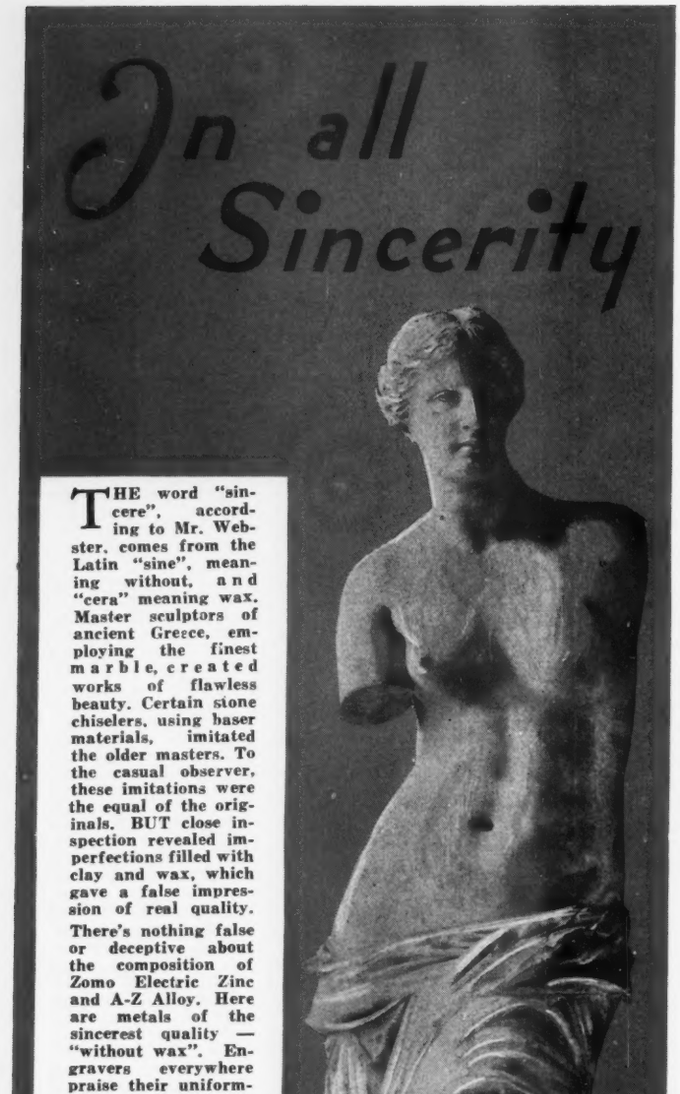
Pacific Coast Representative, RALPH LEBER
426 Polson Bldg., Seattle, Washington

A 261

BURGESS CHROME MATS

BURGESS CHROME MATS

BURGESS CHROME MATS


In all Sincerity
THE word "sincere", according to Mr. Webster, comes from the Latin "sine", meaning without, and "cera" meaning wax. Master sculptors of ancient Greece, employing the finest marble, created works of flawless beauty. Certain stone chiselers, using baser materials, imitated the older masters. To the casual observer, these imitations were the equal of the originals. BUT close inspection revealed imperfections filled with clay and wax, which gave a false impression of real quality.
There's nothing false or deceptive about the composition of Zomo Electric Zinc and A-Z Alloy. Here are metals of the sincerest quality — "without wax". Engravers everywhere praise their uniformity and clean, quick etching. These metals can be relied upon to lend distinction to your skill and to be worthy of your sincerest effort.
Specify on your orders "A-Z Alloy" for direct printing runs or heavy mat work and "Zomo Electric Zinc" for electrotyping and fine commercial work. Both metals are prepared by the Electric Induction Process. Every sheet bears the trade name on the back. Leading distributors in the principal cities of the United States, Canada and Great Britain now carry stocks of these metals.
ZOMO ELECTRIC ZINC
A-Z ELECTRIC ALLOY

Patent Papers:

Printed copies of patents are furnished by the United States Patent Office at 10 cents each. Address the Commissioner of Patents, Washington, D. C., and enclose 10 cents for each patent paper wanted.

Patents

Include One for Photographing Justified Matrix Lines on Film

MAY-JUNE

Composing Machines:

2,042,041. COMPOSING AND REPRODUCING DEVICE. Samuel I. S. Friedman and Otto I. Bloom, New York, N. Y. Application March 9, 1935, Serial No. 10,183. 6 Claims. (Cl. 95—4.5.)

1. In an apparatus, a photographic camera stationed at normal casting box position in a line composing machine and replacing the usual casting box used thereat, a line composing machine including a set of opaque matrices bearing characters photographically reproducible as printed type impressions by the camera, the machine having means for delivering successive composed and justified lines of the matrices to the position which they would normally occupy in the conventional line composing and casting machine when being cast so that the lines may be successively photographed by the camera, the camera being provided with means for feeding a continuous strip of photographically sensitized material and having means for successively photographing the composed and justified lines of matrices in spaced relationship on the strip.

2,042,978. TYPOGRAPHICAL SLUG CASTING MACHINE. Christian Augustus Albrecht, Berlin, Germany, assignor to Mergenthaler Linotype Company, Brooklyn, N. Y., a company of New York. Application September 15, 1934, Serial No. 744,193. In Germany September 15, 1933. 9 Claims. (Cl. 199—61.)

1. In a typographical slug casting machine, the combination of a mold in which a slug is cast, means for ejecting the slug from the mold, a galley to which the cast slug is delivered after ejection, a receptacle adjacent the entrance end of the slug galley in which each slug is received and cooled on ejection, and means operable to transfer each cooled slug from the receptacle to the galley.

2,043,231. KEYBOARD PERFORATOR AND COUNTER. Stanley Bracken, La Grange, and Maurus T. Goetz, Chicago, Ill., assignors to Teletype Corporation, Chicago, Ill., a corporation of Delaware. Application November 17, 1933, Serial No. 698,430. 30 Claims. (Cl. 164—112.)

1. In an apparatus for preparing control strips for linecasting machines, an indicator, means operable under certain operating conditions for operating the indicator, other means operable under different operating conditions for augmenting the operation of the means, and means operable permutably for selectively controlling the operations of the pair of means for determining the extent of operation of the indicator.

2,043,755. SLUG CASTING MACHINE. George Peyton Kingsbury, Hollis, N. Y. assignor to Mergenthaler Linotype Company, a corporation of New York. Application February 16, 1935, Serial No. 6,796. 20 Claims. (Cl. 199—56.)

1. In a slug casting machine, the combination of a mold, a cooling chamber, and means for disestablishing and establishing contact between the mold and the chamber during a machine cycle of operation.

2,043,955. METHOD OF MAKING MATRICES. Ransom H. Turner, Little Neck, N. Y., assignor to Intertype Corporation, Brooklyn, N. Y., a corporation of New York. Application July 29, 1933, Serial No. 682,861. 7 Claims. (Cl. 199—64.)

1. The method of making a matrix for typographical machines, having a body with parallel edges and sides and a V-shaped web at the upper end of the body provided with oppositely disposed distributing teeth with flat undersides, which comprises cutting in a side of the matrix a recess having a conical base to simultaneously form by the walls of the base the flat undersides of the lowermost teeth and a wall perpendicular to the teeth, and to form by the sides of the recess a cavity with side walls angular to the edges and sides of the matrix and to the teeth in the web.

2,044,486. CLEANING ATTACHMENT FOR INTEGRAL LINE-CASTING TYPE MACHINES. Charles A. Spickler, Yardley, Pa. Application March 23, 1935, Serial No. 12,677. 11 Claims. (Cl. 199—62.)

1. In combination with the slug-trimming knives of an integral line casting type machine having an assembly elevator, wiping means movable lengthwise of the knives and located in position to remove from the knives material adhering thereto, a bracket detachably secured to the assembly elevator and movable therewith and a support for the wiping means carried by the bracket.

2,044,685. ANTISPLASH GUARD FOR TYPOGRAPHICAL MACHINES. John H. Hanson and William M. Hanson, Chicago, Ill. Application July 5, 1933, Serial No. 679,126. 7 Claims. (Cl. 199—53.)

1. An attachment for a typographical machine which machine comprises a melting pot having a delivery nozzle and a gear having pockets in each of which a mold is mounted for movement with the gear in position to receive molten metal from the nozzle, comprising a guard having a horizontal flange adapted for confinement between the top wall of the mold and adjacent wall of the pocket, and a vertical flange adapted to be positioned adjacent that face of the gear opposite the melting pot.

Feeding, Folding, Delivery:

Reissue—19,996. AUTOMATIC SPLICING DEVICE. Henry A. Wise Wood, New York, N. Y., assignor to Wood Newspaper Machinery Corporation, New York, N. Y., a corporation of Virginia. Original No. 2,032,244, dated February 25, 1936, Serial No. 556,388, August 11, 1931. Application for reissue March 26, 1936. Serial No. 71,076. 21 Claims. (Cl. 242—58.)

8. In a machine for splicing a running web, the combination of a rotatable web roll support capable of supporting a plurality of web rolls including a running web roll and a fresh web roll, a pasting brush movable from inoperative position to an intermediate position, means for speeding up the fresh web roll, means for rotating the support to bring the fresh web roll to splicing position adjacent to the running web and stopping rotation of the support,

and a circuit completing device adapted to operate after the fresh web roll has been placed in splicing position and has made more than one full revolution to permit the brush to press the running web against the fresh web roll to make a splice.

2,042,919. WEB ROLL CONTROLLING DEVICE. Henry A. Wise Wood, New York, N. Y., assignor to Wood Newspaper Machinery Corporation, New York, N. Y., a corporation of Virginia. Application March 13, 1933, Serial No. 660,470. Renewed November 1, 1935. 3 Claims. (Cl. 242—58.)

2. In a device for controlling and speeding up web rolls for a web splicing mechanism, the combination of an endless belt for engaging the surfaces of the rolls, means for guiding the belt located in a position near the web roll which the belt is engaging, and means for moving the belt guiding means toward both rolls to cause a wrap of the belt around an arc of the circumference of the web roll located nearest to the guiding means.

2,044,459. SHEET COLLECTING AND FOLDING MECHANISM FOR PRINTING PRESSES. Howard M. Barber, Pawcatuck, Conn., assignor to C. B. Cottrell & Sons Company, Westerly, R. I., a corporation of Delaware. Application May 15, 1935, Serial No. 21,563. 19 Claims. (Cl. 270—10.)

1. Means for cutting the web product of each cycle of a rotary web printing press into an even number of sheets or groups of sheets, and two collecting and folding cylinders having single collecting surfaces, each collecting and folding cylinder being arranged to collect an even number of the sheets or groups of sheets and fold them off to a predetermined point.

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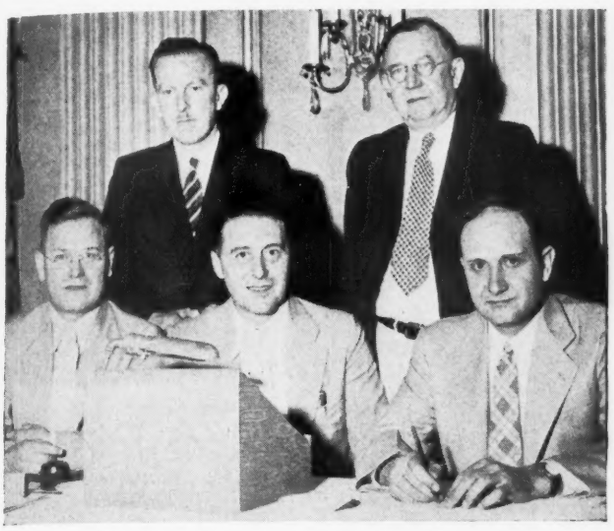


Here are the newly elected officers of the Illinois Daily Newspaper Composing Room Executives Association. Reading from left to right they are: (Front row) Earl E. Anderson, Register-Republic-Star, *Rockford, Secretary-Treasurer; Leon V. Gonigam,* Republican-Times, *Ottawa, President; Russell B. Miller, Bloomington* Pantagraph, *Vice President; (Back row) W. A. Baldwin, Peoria* Star *and N. O. W. Johnson, Moline* Dispatch *who with Verne Williams of the Springfield* Register *(not shown) were elected directors. The next meeting of the Illinois group will be held in Bloomington in September, 1937, at which time Russell Miller will have charge of arrangements. A bright spot in the Peoria meeting program was the talk given by Leon A. Link, Des Moines (Ia.)* Register *and* Tribune *composing room superintendent.*

M L Co. Opens New Offices

The Mergenthaler Linotype Company opened recently its New York Sales Agency offices and new display rooms at 500 Fifth Avenue.

"Our new quarters, on the eighteenth floor," says Charles C. Rhame, agency manager, "are high above the bustle of Forty-second Street and Fifth Avenue, but right in the heart of the uptown business district.

"Our new display room will feature the latest Linotype developments, including the All-Purpose Linotype and the new Blue Streaks. A cordial invitation is extended to everyone in the graphic arts to visit our new quarters."

Moves To Larger Quarters

Linotype Maintenance Co. has moved to new and larger quarters at 237 Lafayette St., New York. Having had 20 years practical experience, the company specializes in new and rebuilt fully guaranteed machinery.

WHEN EARS TINGLE AT A COMPLIMENT

WHEN an advertiser calls up to say, "That page of ours certainly looked fine and, boy, did it pull?", the newspaper executive mentally passes the compliment down the line, thinking of the fine equipment and alert personnel that made satisfaction possible.

Perhaps he gives a fleeting thought to the Certified Mat that transferred such perfect impression from the composition and engravings to the printing plate. Certainly without dry mat perfection, all other measures would have been relatively ineffective.

For dependable stereotyping, rely on Certified Mats, made in the U. S. A.

CERTIFIED DRY MAT CORPORATION

338 MADISON AVE., NEW YORK, N. Y.

Certified DRY MATS

FLEX
DRY MATS

For better dry mat performance, and particurlarly for better reproduction of halftones and heavy solids, use FLEX dry mats. FLEX dry mats mold well at low pressures, scorch quickly, and make good plates at moderate casting temperatures. Try FLEX dry mats: you will be delighted with the improvement in your presswork.

FLEXIDEAL DRY MAT COMPANY
21 West Street New York

Offset-Lith:

2,043,802. PHOTO COMPOSING MACHINE. Alexander T. Koppe, Passaic, N. J. assignor to General Printing Ink Corporation, New York, N. Y., a corporation of Delaware. Application March 7, 1933, Serial No. 659,911. 16 Claims. (Cl. 95—76.)

1. In a photo-composing machine, a base board immovably fixed in vertical position and adapted to have a light-sensitive element secured thereto, horizontal guiding means mounted in fixed position entirely at one side of the horizontal center line of the base board, a vacuum frame carried by the fixed guiding means, and means for adjusting the vacuum frame with respect to the light-sensitive element.

2,043,995. METHOD OF AND MEANS FOR DAMPENING PRINTING SURFACES OF PLANOGRAPHIC AND ANALOGOUS PRESSES. John G. Goedike, San Antonio, Tex. Application September 12, 1932, Serial No. 632,734. 14 Claims. (Cl. 101—130.) (Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757.)

1. In a printing press, the combination of a printing member, inking mechanism including an ink distributing drum, means associated with the drum for controlling the temperature of its surface in order to condense moisture thereon and means for transferring the moisture from the distributing drum to the printing member.

2,044,429. PHOTOLITHOGRAPHIC PROCESS. William Henry Hackett, Coogee, near Sydney, New South Wales, and Percy William Pryke, Lane Cove, near Sydney, New South Wales, Australia. Application August 29, 1933, Serial No. 687,366. In Australia August 30, 1932. 1 Claim. (Cl. 95—5.1.)

A process for the production of photo-mechanical printing surfaces which following upon the preparation from an original coloured picture of a usual key drawing indicating the colour components of the original includes in combination the step of, photographically preparing from the key drawing a number of separate enlargements of the same upon the grained surfaces of metal plates which in number correspond with the number of colour printings to be superimposed in the finished printed production, painting in the enlargements in manner so that each separate one of them may constitute a representation of a different one of the colour components of the complete picture and, preparing from the last-mentioned representations photographic reproductions in reduced size and upon smaller surfaces of other grained metal plates in like number designed to be formed by known means into printing surfaces in manner so that successive printings from them upon the same smooth paper surface may form the finished coloured picture or print.

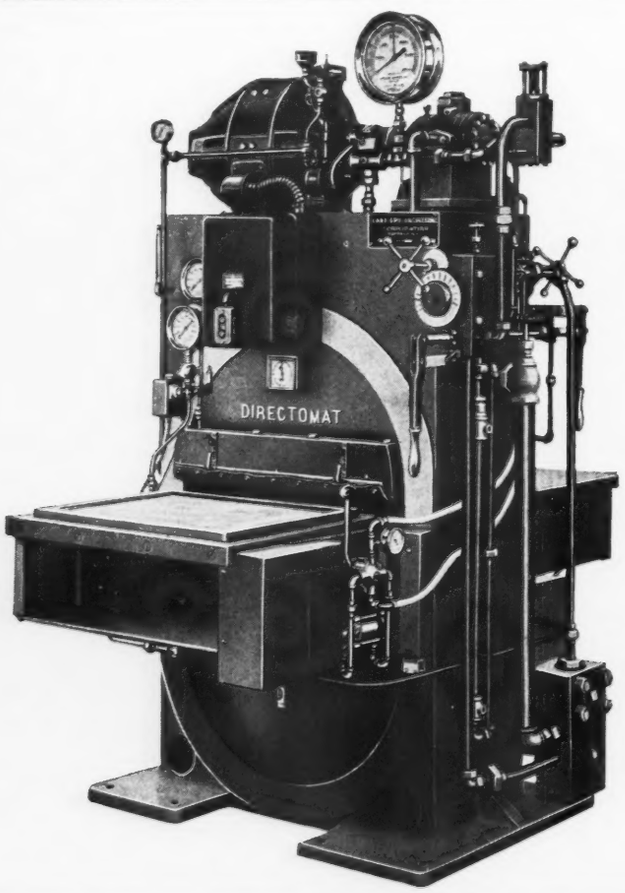
Plate Making:

2,041,743. PRINTING PLATE MATRIX. Theodore C. Browne, Hinsdale, Ill. Application May 7, 1934, Serial No. 724,273. 5 Claims. (Cl. 41—25.)

A matrix for the production of printing plates from molded plastics having an impression-bearing face comprising a layer of a sulphur-free resilient compound capable of relatively large deformation within its elastic limit, an intermediate layer of rubber, and a metallic back vulcanized and united together to form a unitary matrix element.

2,041,941. PRINTING-PLATE MATRIX. Walter Matuschke, Berlin-Hermsdorf, and Erich Blasing, Berlin, Germany. Application March 9, 1931, Serial No. 521,330. In Germany March 10, 1930. 1 Claim. (Cl. 154—46.5.)

A composite matrix plate for stereotype work, consisting of a sheet of matrix material receiving an impression, the sheet being of such consistency and thickness as to be irregularly shaped substantially in accordance with the general outline of the impressions received and as independently to preserve such impressions and shape, and of a backing member attached to the sheet and of such compressibility and thickness that the face thereof attached to the sheet is moulded in conformity with the irregularly shaped sheet while the rear of the backing member remains flat.



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Metzger Photo Supply Co., 1091 So. Main St., Akron, Ohio
G. C. Dom Supply Co., 125 East Pearl St., Cincinnati, Ohio
C. S. Illingworth, 49 Springville Avenue, Buffalo, New York

2,042,003. PRINTING ELEMENT AND METHOD OF MAKING SAME. William C. Huebner, Chicago, Ill. Application July 12, 1932, Serial No. 622,051. 5 Claims. (Cl. 41—41.5.)

3. In the method of producing an ink printing element having a metal base plate, the improvement which includes: etching predetermined image areas of the surface of the metal plate and thoroughly removing all oxides produced by the etching; then applying an oxidizing agent to the cleaned, etched image areas and by the resultant chemical action producing a grease receptive oxide, in situ, in the image areas; then applying to the grease receptive oxidized image areas, a greasy, oxidizable compound containing an oxidizing agent and, by the resultant chemical action, uniting, in situ, the compound with the previously formed oxides; and finally applying to the oxidized areas, an oxidizable ink-receptive mixture containing an oxidizing agent and, by the resulting chemical action, uniting the mixture, in situ, with the previously formed oxides.

2,042,476. PROCESS FOR PRINTING ON IRREGULAR SURFACES. Henry H. Meyer, Detroit, Mich., assignor to Louis J. Eppinger, Detroit, Mich. Application April 22, 1935, Serial No. 17,664. 3 Claims. (Cl. 101—35.)

1. A process for printing any chosen design on any irregular shaped warped surface, consisting of first producing the design in ink on white paper and then reproducing it on a zinc etching of deep line structure, the zinc etching then being used as a matrix for forming a thin, flexible rubber type mat having the design thereon, the type mat being mounted on a resilient printing block of sponge rubber and coating the type mat design lines with reproducing ink, followed by contacting the edge of an irregular shaped object surface upon which the design is to be printed with one edge of the type mat design surface and depressing the same into the resilient printing block until the irregular shaped surface edge is contacted therewith the full length thereof, then rolling the irregular object surface over the type mat design while so depressed.

Printing Presses:

2,039,435. INKING MECHANISM FOR USE IN PRINTING MACHINES. Thomas Joseph Mills, Cecil George Quick, and Donald Arthur Ball, London, England, assignors, by mesne assignments, to R. Hoe & Co., Inc., New York, N. Y., a corporation of New York. Application January 12, 1934, Serial No. 706,366. In Great Britain January 18, 1933. 14 Claims. (C,. 101—366.)

1. In an ink feeding system for a printing machine, a receptacle for ink, a conduit for supplying ink to the receptacle, a pumping system located within and adapted for forcing ink from the receptacle, and means arranged within the receptacle and operating to advance ink in the receptacle to the pumping system.

2,039,867. INKING MECHANISM FOR PRINTING MACHINES. Adolph M. Zuckerman, New York, N. Y., and Herman P. Clausberg, Hasbrouck Heights, N. J., assignors, by mesne assignments, to R. Hoe & Co., Inc., New York, N. Y., a corporation of New York. Application February 3, 1934, Serial No. 709,598. 16 Claims. (Cl. 101—351.)

1. Ink distributing mechanism for a printing machine, including in combination, a main drive, a form cylinder and ink distributing cylinders, gearing to rotate the form cylinder from the main drive and gearing to rotate the ink distributing cylinders from the form cylinder, means for vibrating the ink distributing cylinders, and gearing to actuate the vibrating means from the main drive.

2,039,909. PRINTING PRESS. Huxley D. Kem and Joseph R. Marshall, Jr., Medford, Oreg. Application October 24, 1934, Serial No. 749,831. 5 Claims. (Cl. 101—123.)

1. A stenciling machine including a plurality of supporting legs, a frame carried by the legs, a stencil screen carried by the frame, a table adapted to hold a sheet of paper or other material against the screen to receive an impression, a plurality of means for raising and lowering the table, a plurality of means for moving the table outside of the frame for holding the table outside of the frame for a given time, and then moving the table back within the frame while in a lowered position, a squeegee for spreading coloring matter over the stencil screen, power actuated means for moving the squeegee over the stencil screen, and means including an electric switch for shutting off the power actuated means on each stroke of the squeegee.

2,039,992. INK FOUNTAIN FOR PRINTING PRESSES. John Joseph Harold, New York, N. Y., assignor, by mesne assignments, to R. Hoe & Co., Inc., New York, N. Y., a corporation of New York. Application May 26, 1931, Serial No. 540,057. Renewed July 13, 1935. 20 Claims. (Cl. 101—366.)

1. In a printing machine the combination with an ink-distributing cylinder, of a reservoir supplying ink, means for conveying ink to an elevating chamber, means for raising ink by adhesion, a means of controlling the supply of ink, of a discharge orifice for delivery to the ink-distributing cylinder and means of spreading ink so delivered over the surface of the ink-distributing cylinder.

2,040,158. SUPPORT FOR INKING MECHANISM. Wilhelm Turk, Cologne-Deutz, Germany. Application January 18, 1934, Serial No. 707,163. In Germany June 14, 1933. 1 Claim. (Cl. 101—219.)

In a combined rotary printing and embossing press having a laterally swingable inking mechanism, a laterally swingable strap carrying the inking mechanism, a column supporting one end of the strap, bearing members supporting the column, a slot in the other end of the strap, a screw stud on the machine frame engaging the slot for fixing the strap, a vertical adjustable arm for supporting the strap in swung position, the arm being turned away from the strap during working of the machine and an adjustable collar on the column for supporting the arm in adjusted position.

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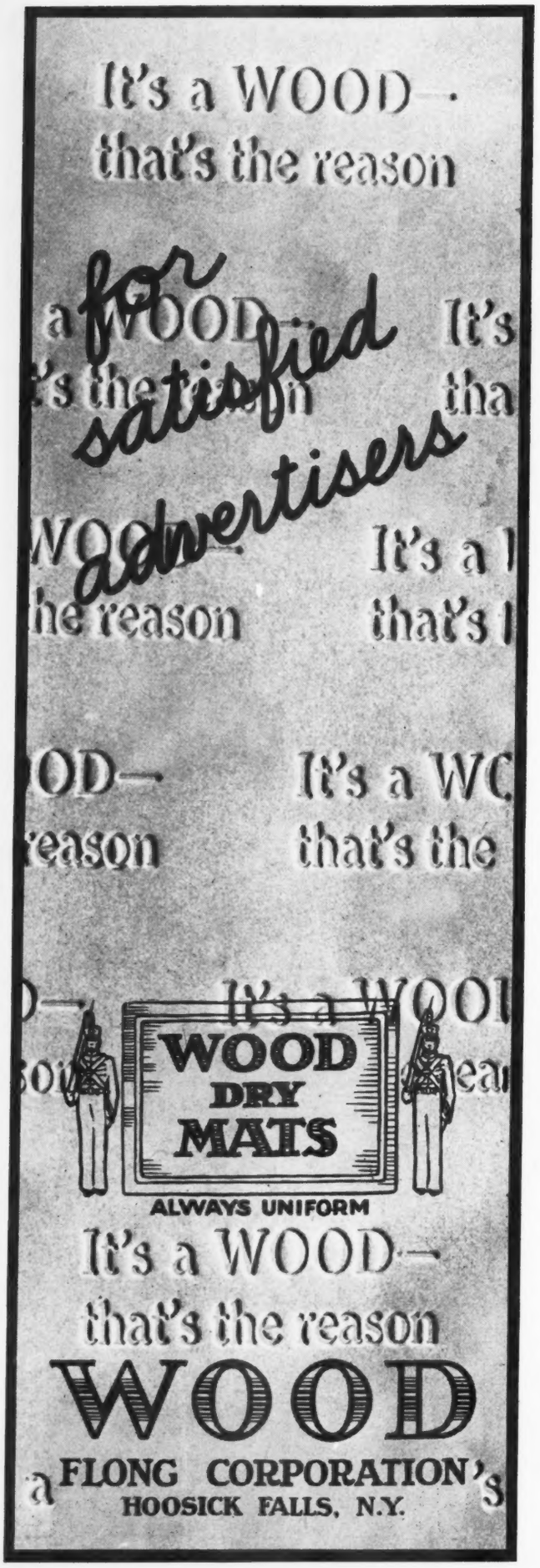

2,040,226. COLOR PRINTING ATTACHMENT FOR WEB PRINTING PRESSES. Edward J. Watkins, Monrovia, Calif. Application December 10, 1934, Serial No. 756,736. 2 Claims. (Cl. 101—173.)

1. A flat bed web printing press comprising a printing mechanism and two rigid feed rollers, one of which feeds a web to the printing mechanism and the other of which discharges the web from the printing mechanism, in combination with an auxiliary printing cylinder having a resilient printing face and positioned to print on the web as the latter passes over one of the feed rollers whereby the rigid feed roller constitutes a backing member to compress the web against the auxiliary printing cylinder, and means for driving the auxiliary cylinder in synchronism with the feed roller.

2,040,331. VIBRATING MECHANISM. Henri E. Peyrebrune, River Forest, Ill., assignor to The Miehle Printing Press and Manufacturing Company, Chicago, Ill., a corporation of Illinois. Application July 5, 1934, Serial No. 733,703. 25 Claims. (Cl. 101—348.)

1. In a vibrating mechanism for ink distributing rollers or the like, the combination of a stationary shaft, a supported rotary member, and differential gears for imparting a latera reciprocating motion to the rotary member.

2,040,686. PLANETARY PRINTING PRESS. Edward Cheshire, East Cleveland, Ohio assignor to Miehle Printing Press & Manufacturing Company, Chicago, Ill., a corporation of Illinois. Application April 8, 1931, Serial No. 528,500. 37 Claims. (Cl. 101—270.)

1. In a printing press, the combination of a plurality of printing cylinders traveling through a planetary path and being cooperatively associated with a printing member, means to feed sheet material to the cylinders, and means on the cylinders adapted to register the sheet in relation thereto during the feeding operation.

2,040,961. INKING SYSTEM FOR PRINTING PRESSES. Clarence E. Sotuch, Great Neck, N. Y., assignor to Speedry Gravure Corporation, New York, N. Y., a corporation of New York. Application August 17, 1935, Serial No. 36,609. 6 Claims. (Cl. 101—157.)

1. In combination with a printing press having a rotatable printing cylinder and an ink housing adapted to receive ink having a relatively volatile ingredient, means to recover volatile ink ingredients escaping from adjacent the cylinder, means to condense the volatile ink ingredients, and means to return the condensed ingredients to the ink housing.

2,041,730. PRINTING MECHANISM. Abe J. Shickman and Walter A. Thum, St. Louis, Mo., assignors to The Vari-Color Machine Co., St. Louis, Mo., a corporation of Missouri. Application October 1, 1934, Serial No. 746,314. 3 Claims. (Cl. 101—175.)

1. In combination with a printing couple one of the members of which has a printing form thereon, a rotary ink-supply roller, an ink roll in constant engagement with the roller and positioned to be swung relatively of the supply roller into or out of engagement with the form while maintaining the engagement with the roller, and cam means operable in unison with the movement of the couple to swing the roll out of engagement with the form over a predetermined area of the latter.

2,042,060. MULTICOLOR PRINTING MACHINE. Frank F. Kaiser, Montrose, N. Y., assignor to John Waldron Corporation, New Brunswick, N. J., a corporation of New Jersey. Application October 26, 1934, Serial No. 750,041. 7 Claims. (Cl. 101—182.)

1. In a multi-color printing machine, an impression cylinder, a plurality of printing rolls for the cylinder, the printing rolls frictionally surface driving the impression cylinder, means for moving the printing rolls toward and from the printing cylinder simultaneously and in parallel alinement with the impression cylinder.

2,042,076. BLANKET FOR PRINTING PRESSES. William M. Shultz, Eureka, Kans. Application April 26, 1932, Serial No. 607,582. 4 Claims. (Cl. 154—54.5.)

1. A packing blanket for the impression cylinder of printing presses, consisting of a base layer of granulated fibrous composition which is substantially equal to and limited to the printing surface of the circumference of the cylinder, an upper layer of fabric and rubber upon the fibrous layer being thinner than the latter and extending beyond the same to provide for anchorage and avoid creating any hump at the edge of the cylinder, and adhesive means connecting the layers together, all of which has been cured and vulcanized and constitutes a single unit.

2,042,432. METHOD OF PRINTING. Francis Jack Jeuck, Battle Creek, Mich., assignor to The International Printing Ink Corporation, New York, N. Y., a corporation of Ohio. Application December 27, 1935, Serial No. 56,303. 8 Claims. (Cl. 101—416.)

5. The method of printing which comprises applying an ink containing a volatilizable, inflammable liquid to a traveling web, heating the web at a point in its travel to volatilize the liquid, and igniting the vapor emerging from the ink on the web, and snuffing out the flame by winding up the web.

2,042,769. INKING APPARATUS FOR PLATEN PRESSES. Artur Buttner, Heidelberg, Germany, assignor to Schnellpressenfabrik Aktiengesellschaft Heidelberg, Heidelberg, Germany. Application April 8, 1935, Serial No. 15,346. In Germany May 12, 1934. 6 Claims. (Cl. 101—359.)

1. A guiding device for the ink distributing rollers of platen printing presses, comprising, in combination, with the rollers guide rolls connected to the rollers, and guide rails for the rolls, the guide rails forming magnets so as to be able to hold the rolls in continual contact with the guide surface so as to obtain a slip-free rolling of the guide rolls on the rails.

2,042,943. INK FOUNTAIN. Ernest Hoyle, Woodside, N. Y. Application June 4, 1935, Serial No. 24,806. 5 Claims. (Cl. 101—365.)

1. An ink fountain comprising a roll, an ink receptacle disposed beneath the roll and into which the surface of the roll passes for application of ink thereto, a blade supporting plate arranged longitudinally of and in spaced relation to the roll, a blade for controlling the amount of ink to be transmitted by the roll for supply to a press, means for adjustably mounting the blade in connection with the supporting plate and in a plane tangential with respect to the peripheral surface of the roll, the means comprising blocks slidably engaging the supporting plate, and other means mounted in connection with the blocks and engaging the blade at longitudinally spaced intervals for adjusting the position of the free edge of the blade toward and from the roll.

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Books

(*Continued from Page 24*)

The author states the publication of this book "is an attempt to point out, with many concrete examples, many of the things that work against attractiveness and legibility in newspapers, and many of the things that make newspapers more attractive and easier to read."

Of interest to the mechanical executive will be the sections devoted to page sizes and column widths, make-up limitations, news head faces, newsbody faces, leading and spacing, nameplates and ears, dashes and cutoffs and column rules. The section on boxes and boxed effects (dear to the hearts of all newspapermen) is treated in fine manner. Since the subject of illustrative material for newspapers is receiving so much attention now, the mechanical executive will be highly interested in Mr. Allen's discussion on newspaper illustrations.

The paper with which any mechanical executive is associated probably has some unsatisfactory type or makeup arrangement which certainly can be corrected through the information contained in Mr. Allen's book.

It may interest our readers to know that the first edition of "Newspaper Makeup" by John E. Allen, has been completely exhausted but the second edition will be available probably by the time this review has been published in *Printing* EQUIPMENT *Engineer*.

"Newspaper Makeup," by John E. Allen, 495 pages, more than 400 illustrations. Size 6½ in. by 9¾ in. Bound in blue cloth. Published by Harper & Bros., New York. Price, $4.00 per copy.

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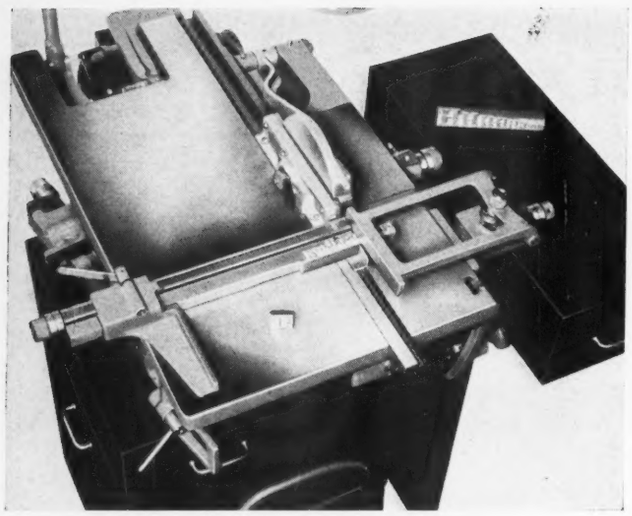

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Carl Nelson, president of the Nelson Roller Company, with offices in the Tribune Tower, Chicago has opened a New York office in the Daily *News* building. Mr. Nelson stated he would divide his time between the Chicago and New York offices. The Nelson Roller Company handles the Dayco Stayput Roller, which is a synthetic newspaper roller.

Egmont Booklet

Egmont and Egmont Medium are shown in complete series in a new booklet now being distributed by Intertype Corporation. The booklet is 8½ by 11 in., contains twenty-four pages and cover, and is printed in two colors throughout. The specimens include a showing of 36-point Egmont initials designed by George Trenholm.

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In addition to the type specimens, the booklet contains a number of exhibits which show practical examples of Egmont advertising typography and other work for which this new face is best adapted. All users of line composing machines and others may secure a copy of this interesting booklet by writing the Intertype Corporation, 360 Furman Street, Brooklyn, New York, or any of its branch offices.

C.-H. Los Angeles Office

The Los Angeles Sales office of Cutler-Hammer, Inc., Milwaukee, manufacturers of electric motor control apparatus, has moved to new quarters at 1331 Santa Fe Avenue, Los Angeles, Calif. A complete stock of C.-H. motor control, safety switches and electrical specialties will be carried. The office is in charge of W. G. Tapping.

Distinction for Church

LeRoy Church, typographer for the Akron (O.) *Beacon-Journal*, submitted a script in the recent linotype radio contest. His script was among the fifteen chosen for final consideration by the judges. The contest was won finally by Charles A. Wright, instructor of journalism at Temple University.

CLINE-WESTINGHOUSE ELECTRICAL EQUIPMENT

ALTERNATING CURRENT

FOR LETTER PRESSES

DIRECT CURRENT

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LOCAL CONDITIONS

CLINE SYSTEM

DESIGNED FOR . . .
PRESS REQUIREMENTS

What Is It?

(*Continued from Page 20*)

word "AMAL" as it appears on the press plate reads forward, but after being transferred the word reads backward on the blanket. When this inked impression is again transferred to the paper from the rubber blanket, the word once more assumes its correct form. Were the image to read backward on the press plate as type characters do, it would end up reading backward on the paper because of this double transfer.

It is this printing from the rubber blanket that gives lithography the pleasing soft tones. The use of the rubber blanket, with its yielding surface, makes it possible to give faithful and reliable transfer of dots and characters to uneven and coarse surfaces.

Press Plate Preparation

How is the job gotten on the press plate? We'll deal with the press plate because it is more universally used than stone at present. For that matter, so far as the actual treatment of the printing surface is concerned, both materials receive similar treatment. While different acids are used to achieve like results on stone and metal, the goal is alike in both cases.

Stone, because of its greater absorbability, is polished. The polished surface is flat. However, an exception occurs when the artist has to use crayon. In that case, the surface is grained with flint and another stone to give the greasy drawing crayon a tooth upon which to hold. This gives the surface of the stone an appearance similar to the oatmeal finish on the wall in your living room, only much finer in texture. Some sketch board has a grain much like that put to the lithographic stone for crayon drawings by the artist.

A similar grain of various degrees of fineness, depending upon the work, is also made on the surface of lithographic plates. Figure 7 represents such a grain. It goes without saying, then, that crayon drawings may also be made on metal plates. Figures 4* and 5* should have this grain effect represented on the upper surface which carries the work.

Grain on offset-lith is necessary for two reasons: (1) Work on such grain receives a better anchorage, and (2) The grain enables the plate to retain moisture more readily, the wells of the grain acting as miniature water reservoirs. In contradistinction to this the stone retains moisture by absorption due to its greater porosity than the metal plate.

In polishing stones, the work is first removed by either a planer which removes the fine cut of stone by aid of a knife, or else the work is ground off with a very coarse abrasive, usually sea sand. Different grades of stones, such as sandstone, bluestone, and pumice stone are then used to remove each deposit of scratches and sand holes left by the preceding more abrasive stone.

In plate graining, however, a different procedure is followed. Marbles of glass, wood, china, steel, or other materials are rotated over the surface of the plate placed in a regular plate-graining machine. Flints of various sized grains are used with water, added in the graining operation. The marbles rotating over the flint kernels, break up the smooth plate surface into a multitude of pits and mounds. These then act as tiny reservoirs for the moisture needed in lithographic printing.

Whether stone or plate is used, both surfaces are sensitized, or made grease-receptive. Counter-etched is the trade term used which covers this operation. When the printing surface is thus cleaned of any oxide film or strange layer through counter-etching, the work rests directly on the printing surface. There are some who

Certainly
MACHINES MAKE MISTAKES

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hold to the belief that the counter-etching action deposits a film which makes for greater cohesion, which accepts the grease more readily, and that this film holds to the plate more tenaciously. Be the explanation what it may, it is an established fact that the counter-etched surface receives grease more readily. This counter-etching is accomplished through an acid action.

The term "sensitized" is not to be confused with another similar term. In photo-lithography, where prints are made to stone or plate by means of a light-sensitive solution, the plate surface is also said to be sensitive when a film of bichromated glue, gum, albumen, or some other colloid, is put to the printing surface. But then it is sensitive to light, not grease.

Transferring

When the plate is sensitive (grease-receptive), work either is drawn on it, or transferred to it. In both cases a greasy medium is employed. On the one hand, the artist uses tusche or crayon; and on the other, the transferrer uses greasy transfer ink. He gets his impression on transfer paper, a specially prepared paper having a coating of starch, flour, glycerine, dextrine, or other materials on its face. When moistened the paper on the back releases this coating. The ink which forms the impression on its surface is released in the transferring process, and thus forms the image on the printing surface. This ink image is then prepared for the press.

Photo-Lithography

It may be more economical to sketch the subject in black ink, three to four times its intended size. This sketch is then photographically reduced, and a photo-litho plate made, from which transfer impressions may be pulled; or the negative may be used to make a photo-mechanical plate.

In the photo-lithographic method of producing the image on the press plate, the light-sensitive coating applied to the surface of plate is exposed to artificial light under a photographic plate (negative if the solution is an albumen one; or positive when the reversal method with its gum, glue, or similar solution is used). The image thus produced is made grease-receptive.

It may be noted that steps similar to deep-etching are followed when the reversal process is used in photo-lithography. Very often the glue or other light-sensitive coating (resist or mask as it is sometimes known) is used equally well for the reversal and for the deep-etch process. But in deep-etching, see page 10, Jan. 1936, *Printing* Equipment *Engineer*, the image is sunk below the surface of the plate through the acid action; whereas this acid action is not employed in the positive reversal method.

In the albumen process, after the light-sensitive coating has been exposed to the action of light under the negative, developing ink is deposited all over the surface of the plate. The plate is powdered; immersed in a tray of water, and is then developed. Wet cotton is lightly drawn over the surface upon which the unexposed or unhardened areas leave the plate. The light which goes through the clear parts of the negative, hardens

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the colloid coating (light-sensitive albumen coating). The coating which lies under the opaque parts of the negative was not attacked by light, and therefore is soluble in water. After the plate has been fully developed, that is, the image alone shows on the plate, it is carefully washed with clear water; rapidly dried, and finished.

The Finishing Operation

After the image has been produced on the printing surface, no matter by which method, there remains the still important part of desentizing the non-printing areas. Since we are confining ourselves to a discussion of planographic printing, it must be remembered that the work lies in the same plane with the printing surface, and as we have noted before, ink rollers passing over this plane surface, ordinarily would cover the entire surface with ink. Therefore, steps must be taken to make the non-printing areas ink-repellant. This is done by chemical means. The image is protected by ink and acid resist in powder of one form or another, and the entire plate is then etched. Gum Arabic is the principal ingredient of the many compounds used in this direction. Various acids, such as nitric, phosphoric, ammonium salts, and others are added to this gum arabic solution, and used for an etch. The combinations used depend upon the metal, whether zinc or aluminum, and the will of the operator. After etching, the plate is well gummed and dried. The combination of etching and gumming forms a hygroscopic coating on the printing surfaces of the metals used in lithography. This hydroscopic coating has the power of attracting moisture, thus repelling grease.

As noted in the last article, the damping rollers in the offset press pass over the press plate, and deposit a film of moisture on this hygroscopic coating. Inkers that follow the damping action then deposit the ink only where the image accepts grease, leaving the non-printing areas clean, because of their grease and ink rejection. This damping action applies equally well to litho intaglio, or planographic printing.

Finally, to assure a ready acceptance of the ink used in printing, as well as to insure a clean color in printing, and further, to deposit an acid-resisting base to the image, the plate is washed out with asphaltum by the pressman previous to running it.

In this article we have noted wherein lithography differs from other printing methods, and have also included a brief outline of production steps, describing the possible methods of getting the work to the press plate with some thoughts on the preparation and finishing of that plate.

The third and concluding article in this series will deal with the offset press operation and printing of the press plate.

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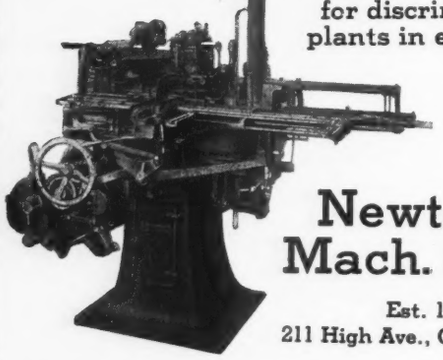

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☐ *Sebastian Lathe Catalog*—Illustrates and describes line of lathes suitable for use in printing plants, including a special rubber roller grinding lathe.

☐ *Goss High-Speed Anti-Friction Unit-Type Newspaper Press*—Catalog describes and illustrates construction and mechanical features.

☐ *Statements Regarding the Ludlow System*—Folder showing 41 halftone likenesses of newspaper mechanical executives who discuss Ludlow equipment in their composing rooms.

☐ *Type Faces*—Booklet, 32 pages and cover, discusses and analyzes the subject "How to Select Type Faces," especially Intertype faces for commercial, newspaper, book, magazine and advertising composition.

☐ *General-Purpose Squirrel-Cage Induction Motors*—Bulletin in which two motors have been taken apart, literally speaking, to show construction. One page is devoted to interesting illustrations showing tests conducted on materials entering into manufacture of motors.

☐ *How to Cut Screw Threads*—This booklet may be obtained by sending 10c to cover cost of handling and postage. Contains step-by-step description of cutting threads in a lathe. Also contains tables of standard screw thread pitches, tap drill sizes, definitions of terms related to screw threads and arrangement of lathe gearing. Other valuable information is given.

☐ *Unusual Mechanical Lifters*—For product manufacturing and handling, especially hard-to-handle products in the printing industry, where standard materials handling equipment devices are not so well adapted, are fully illustrated and described in a new circular No. 320, just issued by Lewis-Shepard Co.

☐ *Bulletin*—Illustrates and describes General Electric motors and control which have been designed especially for Harris-Seybold-Potter offset printing presses.

☐ *A New Star in the Ink Firmament*—Folder treated in several ways with the new Clipper Blue Ink. Specimens showing how to obtain different shades are given.

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Big Time

(*Continued from Page 11*)

tute, Minneapolis, will address the convention on "The Disappearance of Skill and Knowledge in the Printing Crafts."

A generous part of the program running concurrently with the educational activities is given over to the visiting ladies.

The program is as follows:

Sunday, August 9

10:00 A.M. to 10:00 P.M. Registration—Tickets for all events will be issued.

2:00 P.M. Circle Automobile Tour of Minneapolis and St. Paul—A leisurely tour over part of the 100 miles of Twin City Parkway.

7:00 P.M. Get-Together for Good Craftsmen and Their Families—Lunch, Beverages, Entertainment.

Monday Morning, August 10

9:00 A.M. 17th Annual Convention Called to Order in Gold Room by Roy Brewer, General Chairman.—Invocation by Craftsman Herman Loehlin.

9:05 A.M. Address of Welcome—Herbert J. Miller, President of Minneapolis Civic and Commerce Association.

9:20 A.M. Presentation of International President, John B. Curry, by Clarence A. Groettum, President of the Minneapolis Club of Printing House Craftsmen.

9:25 A.M. Response to Address of Welcome.

9:35 A.M. Appointment of Committees.

9:45 A.M. Address—"A Look Ahead Into Printing Equipment and Methods"—Ernest F. Trotter, Managing Editor of *Printing*, N. Y. C.

10:30 A.M. Report of Credentials Committee.

10:40 A.M. Roll Call of Clubs.

10:45 A.M. Educational Clinics—Photoengraving—Roy W. Knipschild, Rosenow Co., Chicago. Composing Room—Howard N. King, Maple Press, York, Pa. Gravure—Ralph Winship, Beck Engraving Co., Philadelphia. Inks—Charles R. Conquergood, Toronto, Ontario, Canada.

12:30 P.M. Adjournment.

Monday Afternoon and Evening, August 10

1:30 P.M. Address—"The Management of the World's Largest Printing Plant"—Honorable A. E. Giegengack, Public Printer of the United States, Washingron, D. C.

2:10 P.M. Resolutions and Amendments.
Quartette Interlude.

2:15 P.M. Presentation of Officers' Reports.

3:00 P.M. Report of the Chairman of the Research Commission.

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5:15 P.M. Dinner at Automobile Club With Ladies at Bloomington-on-the-Minnesota River.

For the Ladies

10:00 A.M. Get Acquainted Informal Gathering.
11:00 A.M. Leave for Automobile Club.
1:00 P.M. Luncheon.
2:00 P.M. Cards, Fortune Telling, Sociability (Prizes, of course)
6:15 P.M. Group Picture.
7:00 P.M. Dinner.
8:00 P.M. Style Show.
9:00 P.M. Outdoor Indian Pageant (Real Indians)
10:00 P.M. Social Dancing.
11:00 P.M. Indian Lore and Songs.
11:30 P.M. Social Dancing.

Tuesday Morning, August 11

9:00 A.M. Convention Assembles.
9:05 A.M. Roll Call.
9:10 A.M. Report of Committe on Constitution and By-Laws.
9:25 A.M. Address—"The Dissappearance of Skill and Knowledge in the Printing Crafts"—Dr. C. A. Prosser, Director of The William Hood Industrial Institute, Minneapolis.
Quartette Interlude.
10:00 A.M. Report of the Resolutions Committee.
10:20 A.M. Report of the Credentials Committee.
10:30 A.M. Educational Clinics—Offset—O. E. Freedman, Manz Corp., Chicago. Presswork—Leader to be selected. Paper—Summerfield Eney, Jr., The Champion Paper and Fibre Company, New York City. Electrotyping—C. L. Sampson, Sampson and Ollier Electrotyping Company, Chicago.
12:15 P.M. Adjournment.

For the Ladies

10:00 A.M. Tour of Leading Department Store (gowns won as prizes Monday night will be fit at this time.)

Tuesday Afternoon and Evening, August 11

12:45 P.M. Golf Tournament (Golden Valley Golf Club)
1:15 P.M. Tee Off.
2:00 P.M. Plant Visitation (if you prefer)
7:00 P.M. Annual Banquet and Ball (Flame Room, Hotel Radisson—Dress Optional)

For the Ladies

2:00 P.M. Trip Through Flour Mills (General Mills, Inc.)
3:15 P.M. Visit to Model Kitchen of Betty Crocker.
3:30 P.M. Cooking Demonstration by Betty Crocker.
7:00 P.M. Annual Banquet and Ball (Flame Room, Hotel Radisson—Dress Optional)

Wednesday, August 12

9:00 A.M. Convention Assembles.
9:05 A.M. Roll Call.
9:10 A.M. Report of Educational Commission—(DeWitt A. Patterson and his four Divisional Vice-Chairmen are responsible for new Departmental Clinics on Monday and Tuesday).
9:40 A.M. Address—"The Relation of Paper, Type, Ink and Illustration"—Frank E. Wagner, Manager of Printing Testing Department, S. D. Warren Company, Boston, Mass.
10:25 A.M. Reports of Committees—Committee on Constitution and By-Laws—Committee on Resolutions—Committee on Finance—Committee on Officers' Reports.
11:00 A.M. Report of Research Commission Committee.
11:30 A.M. Selection of 1937 Convention City.
11:45 A.M. Nomination and Election of Officers.
12:30 P.M. Adjournment of 17th Annual Convention.
1:30 P.M. Plant Visitation.

For The Ladies

10:00 A.M. Tour of Minneapolis Institute of Arts, Walker Art Galleries and the places of interest selected by guests.

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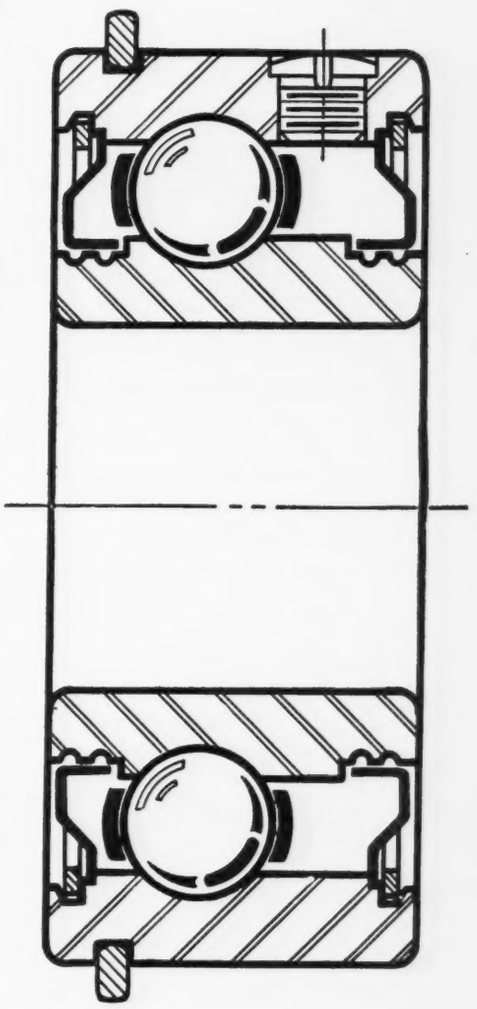

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